Chapter 9

Individual Variations in Drug Response

Learning Outcomes

After reading this chapter, the student should be able to:

1. Describe fundamental concepts underlying a holistic approach to patient care and their importance to pharmacotherapy.
2. Identify psychosocial factors that can affect pharmacotherapeutics.
3. Explain how culture and ethnicity can affect pharmacotherapeutic outcomes.
4. Explain how community and environmental factors can affect health care outcomes.
5. Convey how genetic polymorphisms can influence pharmacotherapy.
6. Relate the implications of gender to the actions of certain drugs.
It is convenient for a nurse to memorize an average drug dose, administer the medication, and expect all patients to achieve the same outcomes. Unfortunately, this is rarely the case. For pharmacotherapy to be successful, the nurse must assess and evaluate the needs of each individual patient. In chapter 4, variables such as absorption, metabolism, plasma protein binding, and excretion mechanisms were examined to help explain how these modify patient responses to drugs. In chapter 5, variability among patient responses was explained in terms of differences in drug–receptor interactions. Chapter 8 examined how pharmacokinetic and pharmacodynamic factors change patient responses to drugs throughout the life span. This chapter examines additional psychosocial, cultural, environmental, and biologic variables that are responsible for producing individual variation in drug response.

9.1 The Concept of Holistic Pharmacotherapy

To deliver the highest quality of care, the nurse must fully recognize the individuality and totality of the patient. Simply stated, the recipient of care must be regarded in a holistic context so that the nurse can better understand how established risk factors such as age, genetics, biologic characteristics, personal habits, lifestyle, and environment increase a person’s likelihood of acquiring specific diseases. Pharmacology has taken the study of these characteristics one step further—to examine and explain how they influence pharmacotherapeutic outcomes.

Figure 9.1 illustrates variables that can affect individual variation in response to pharmacotherapy. This model provides a useful approach to addressing the nursing and pharmacologic needs of patients receiving medications. Because all levels of the model may contribute to pharmacotherapeutic outcomes, they should be considered when developing a patient’s treatment plan. For example, when given a medication for the treatment of hypertension, a Caucasian man may experience greater effects from the medication than an African American man. In addition, cultural or ethnic differences may result in a difference in the extent to which an individual metabolizes certain drugs.

By its very nature, modern (Western) medicine as it is practiced in the United States is seemingly incompatible with holistic medicine. Western medicine focuses on specific diseases, their causes, and treatments. Disease is viewed as a malfunction of a specific organ or system. Sometimes, the disease is viewed even more specifically and categorized as a change in DNA structure or a malfunction of one enzyme. Sophisticated technology is used to identify, image, measure, and classify the specific structural or functional abnormality. Somehow, the total patient is lost in this focus of categorizing disease. Too often, it does not matter how or why the patient developed cancer, diabetes, or hypertension or how he or she feels about it; the environmental, psychosocial, and cultural dimensions are lost. Yet, these dimensions can have a profound impact on the success of pharmacotherapy. To be most effective at achieving positive patient outcomes, the nurse must consciously direct care toward a holistic treatment of each individual patient.

9.2 Psychosocial Influences on Pharmacotherapy

The term psychosocial is often used in health care to describe one’s psychological development in the context of one’s social environment. This involves both the social and psychological aspects of a person’s life. Health impairments related to an individual’s psychosocial situation often require a blending of individualized nursing care and therapeutic drugs in conjunction with psychotherapeutic counseling. When illness imposes threats to health, the patient commonly presents with psychosocial issues along with physical symptoms. Patients face concerns related to ill health, suffering, loneliness, despair, and death and at the same time look for meaning, value, and hope in their situation. Such issues can have a great impact on wellness and preferred methods of medical treatment, nursing care, and pharmacotherapy.

The psychosocial history of the patient is an essential component of the initial interview and assessment. This history delves into the personal life of the patient with inquiries directed toward lifestyle preferences, religious beliefs, sexual practices, alcohol intake, and tobacco and nonprescription drug use. The nurse must demonstrate
Treat the Diverse Patient: Medication Refusal for Religious or Spiritual Reasons

One of the rights of medication administration is refusal. Patients have the right to refuse their medications for religious or spiritually-related reasons. Perhaps most familiar is a refusal to accept blood or blood products by a Jehovah’s Witness member because of religious beliefs. Less familiar is refusal due to the fact that the medication contains animal-derived products.

Ericsson, Burchart, and Rosenberg (2013) explored potential acceptance or refusal of animal-derived products such as porcine (pork) and bovine (beef) surgical products by members of various religious faiths, including Christian, Judaism, Buddhism, Hindu, Islam, and Sikhism. In their study, they discovered that while all religions may permit the use of animal-derived drugs or products in an emergency situation where no other alternative was possible, many religions had some restrictions on the use of such drugs or products for routine use.

In an earlier study, Hoosli and Smith (2011) found that more than 1,000 medications contain animal-based products, including inactive ingredients such as gelatin. Depending on the religious tradition, beef, pork, chicken, fish, shellfish, or all meats may be refused on religious or moral grounds. They recommended that, when possible, a compounding laboratory be approached about making a comparable product for the patient that does not contain the offending ingredient. That option should be explored if alternative formulations are not available for use. In the case of an animal-derived drug such as heparin, the provider should discuss the medication with the patient and explore alternative therapies.

It is important that nurses consider the patient’s religious and spiritual beliefs about medications. Patients may also wish to have time to work through their decisions on spiritual, religious, or moral grounds, and consult their religious advisors before deciding on treatment. Collaborating with and encouraging the patient to consult their religious or spiritual leader when there are questions about a medication or medical product, and maintaining sensitivity to a patient’s religious or spiritual beliefs and traditions should assist the nurse to maintain a holistic focus in medication administration and patient care.

Sensitivity when gathering these types of data. If a trusting nurse-patient relationship is not quickly established, the patient will be reluctant to share important personal data that could affect nursing care.

The psychological dimension can influence the success of pharmacotherapy. Patients who are convinced that their treatment is important and beneficial to their wellbeing will demonstrate better compliance with drug therapy. The nurse must ascertain the patient’s goals in seeking treatment and determine whether drug therapy is compatible with those goals. Past health care experiences may lead a patient to distrust medications. Drugs may not be acceptable for the social environment of the patient. For example, having to take drugs at school or in the workplace may cause embarrassment; patients may fear that they will be viewed as weak, unhealthy, or dependent. Some patients may believe that certain medications, such as antidepressants or antiseizure medications, carry a social stigma, and, therefore, they will resist using them.

Patients who display positive attitudes toward their personal health and have high expectations regarding the results of their pharmacotherapy are more likely to achieve positive outcomes. The nurse plays a pivotal role in encouraging the patient’s positive expectations. The nurse must always be forthright in explaining drug actions and potential side effects. Trivializing the limitations of pharmacotherapy or minimizing potential adverse effects can cause the patient to have unrealistic expectations regarding treatment. The nurse-patient relationship may be jeopardized, and the patient may acquire an attitude of distrust.

Psychosocial interventions should be viewed as complementary to pharmacotherapy. For example, psychosocial stress increases the secretion of corticosteroids, which in turn may increase susceptibility to certain infections and suppress immune cell function. These conditions certainly have the potential to alter the course of pharmacotherapy. In addition, patients with anxiety and depressive disorders may benefit greatly from psychotherapy, self-help instruction, physical exercise, or improved sleep hygiene. Psychosocial interventions may lead to improved compliance with drug therapy.

9.3 Cultural and Ethnic Influences on Pharmacotherapy

Although the terms are often used interchangeably, the definitions of culture and ethnicity are somewhat different. An ethnic group is a community of people that share a common ancestry and similar genetic heritage. Ethnicity implies that people have biologic and genetic similarities. Culture is a set of beliefs, values, and traditions that provide meaning for an individual or group. People within a culture have common rituals, religious beliefs, language, and certain expectations of behavior. Culture and ethnicity can influence a patient’s beliefs and actions such as when and where to seek treatment for a medical condition, and how medical conditions and treatments are viewed. Cultural and ethnic variables can impact pharmacotherapy. Both have a profound influence on patient outcomes and the occurrence of specific drug effects as perceived and interpreted by the user.

In the past, clinical pharmacology was based largely on research and clinical experiences with Caucasian patients. As research began to reveal the large amount of individual variation in people belonging to different cultures and ethnic groups, the makeup of the research groups began to change. Whenever feasible, modern clinical trials include people of different ethnicities and varied ages.
Evidence-Based Practice: Promoting Medication Compliance

Clinical Question: How can the nurse promote medication compliance in patients managing complex health problems with drug therapy?

Evidence: Poor compliance with a prescribed medication has become known as America’s “other drug problem” but one that has health and financial consequences even greater than substance abuse. It is estimated that approximately 50% of patients with chronic illnesses do not take their medications as prescribed, leading to increased complications, death, and additional costs estimated at between $100 and $300 billion per year (Benjamin, 2012; Iagub & McGuire, 2014). The medically underserved population, those Americans of all ethnic backgrounds who are poor, lack health insurance, or have inadequate access to health care, is one of the groups most at risk. There are many reasons for medication noncompliance, such as low health literacy, complex medication routines that are overwhelming for the patient to understand and difficult to comply with, medication cost or the time involved to access and obtain medications, negative attitudes about the provider, and persistent food insecurity where choices between meals or medications must be made (Chisholm-Burns & Spilve, 2012; Craig & Wright, 2012; Satler & Lee, 2013). With over one-third of health care spending concentrated on chronic disease management for conditions such as diabetes, cancer, respiratory conditions, mental health, and pain, the cost of noncompliance is significant (IMS Institute for Healthcare Informatics, 2014).

Research has demonstrated that the use of multiple strategies may increase medication compliance, including simplification of treatment; education given verbally, written, or by audio-visual material; providing feedback to patients on their dosing history based on electronic records such as prescriptions; and coordinating arrangements to assist with cost when possible (Dementeau et al., 2013; Giennett & Karrel, 2014). Educating patients about their medication and providing feedback on medication use were among the most effective techniques to increase adherence (Dementeau et al., 2013).

Nursing Implications: The nurse serves a vital role in increasing medication compliance, both because of the trusting relationship nurses establish with their patients and because the nurse is often the main source of medication education for the patient and family. Knowing that patients often feel overwhelmed with the amount of information provided, or have concerns about the perceived cost of a drug, the nurse can discuss the prescription routine with the patient and ask questions such as: Will the patient be able to fill the prescription, or are there concerns about the cost and how it might impact the purchase of other necessities such as food? Does the patient understand the disease process and how this medication will be part of the treatment plan? How will it fit into the patient’s usual routine or with other medications, and what strategies does the patient think might help maintain compliance?

When teaching about the medications, the nurse should provide simple drug information to help the patient understand why a medication is required, when and how it should be taken, and when to call the health care provider. This vital information that helps increase medication compliance. With each successive health care visit, the nurse can go over the medication history and ask questions about the prescribed medications. Being alert to reports that the patient is not taking, or incorrectly taking, the prescribed drugs may suggest an overwhelming, complex medication routine that needs to be reassessed if it is to be successful. Finally, being sensitive to concerns about cost, and working with the provider and the patient to find workable solutions, may be necessary to ensure compliance.

Although it is impossible to have complete knowledge about the many cultural variations among patients, the nurse can strive to understand the significance of the cultural traditions and their potential impact on the patient’s care.

Cultural competence is the ability of health care providers to provide care to people with diverse values, beliefs, and behaviors, including the ability to adapt delivery of care to meet the needs of these patients. In the context of pharmacotherapy, culturally competent care is the ability to customize the delivery of medications to meet patients’ diverse cultural values, beliefs, and traditions for the purpose of optimizing care and positive outcomes. The nurse should keep in mind the following variables when treating patients from different ethnic groups.

- **Dietary considerations.** Cultures vary in their dietary preferences and practices. Diets that include (or exclude) certain foods have the potential to increase or decrease the effectiveness of a medication. Certain spices and herbs important to a patient’s culture may affect pharmacotherapy. For example, some cultures include a diet with abundant amounts of cheese, pickled fish, or wine that can interact with medications. Certain herbs can affect antidepressants, anticoagulants, and beta blockers. Assessing the primary foods of a patient’s culture is an important component of the patient’s psychosocial history.

- **Alternative therapies.** Various cultural groups believe in using alternative therapies, such as vitamins, herbs, or acupuncture, either along with or in place of modern medicines. Some folk remedies and traditional treatments have existed for thousands of years and helped form the foundation for modern medical practice. For example, Chinese patients may consult with herbalists to treat diseases, whereas Native Americans may collect, store, and use herbs to treat and prevent disease. Certain Hispanic cultures use spices and herbs to maintain a balance of hot and cold to promote wellness. The nurse can assess the treatments used and interpret the effect of these herbal and alternative therapies on the prescribed medications to maximize...
positive outcomes. The nurse can explain that certain herbs or supplements may cause potential health risks when combined with prescribed drugs.

- Beliefs about health and disease. Cultures view health and illness in different ways. Individuals may seek assistance from people in their own community whom they believe have healing powers. Native Americans may consult with a tribal medicine man, whereas Hispanics seek a folk healer. African Americans sometimes practice healing through the gift of laying-on-of-hands. The nurse’s understanding of the patient’s trust in alternative healers is important. The more the nurse knows about cultural beliefs, the better able the nurse will be to provide support and guidance to patients.

Although culture and ethnicity are important variables to consider when treating patients, the nurse must be aware that not every individual within a well-prescribed cultural group will have identical values and traditions. Failure to recognize that individual variation exists within a group can lead to negative stereotyping of a patient.

### 9.4 Community and Environmental Influences on Pharmacotherapy

A number of community and environmental factors have been identified that influence disease and its subsequent treatment. Population growth, complex technological advances, and evolving globalization patterns have all affected health care. Communities vary significantly in regard to population density, age distributions, socioeconomic levels, occupational patterns, and industrial growth. In much of the world, people live in areas lacking adequate sanitation and potable water supplies. All these community and environmental factors have the potential to affect health and access to pharma-cotherapy.

Access to health care is perhaps the most obvious community-related influence on pharma-cotherapy. There are many potential barriers to obtaining appropriate health care. Approximately 15% of all persons in the United States lack health insurance coverage (Centers for Disease Control and Prevention [CDC], 2013b). This number rises to about 30% in persons of age 25–34 and for Hispanics. Without an adequate health insurance plan, some people are reluctant to seek health care for fear of bankrupting the family unit. Older adults fear losing their retirement savings or being placed in a nursing home for the remainder of their lives. Families living in rural areas may have to travel great distances to obtain necessary treatment. Once treatment is rendered, the cost of prescription drugs may be too high for patients on limited incomes. This is especially troublesome for chronic disorders such as hypertension and diabetes. These disorders require lifetime therapy, but patients do not have noticeable symptoms early in the course of the disease. Therefore, the patient may not feel a need for pharmaco therapy. The nurse must be aware of these variables and have knowledge of social agencies in the local community that can assist in improving health care access.

Literacy is another community-related variable that can affect health care. A significant percentage of English-speaking patients do not have functional literacy—a basic ability to read, understand, and act on health information. The functional illiteracy rate is even higher in certain populations, particularly non-English-speaking individuals and older patients. The nurse must be aware that these patients may not be able to read drug labels, understand written treatment instructions, or read brochures describing their disease or therapy. Functional illiteracy can result in a lack of understanding about the importance of pharmaco therapy and can lead to poor compliance. The nurse should identify these patients and provide them with brochures, instructions, and educational materials that can be understood. For non-English-speaking patients or those for whom English is their second language, the nurse should have proper materials in the patient’s primary language, or provide an interpreter who can help with accurate translations (Figure 9.2). The patient should be asked to repeat important instructions to ensure comprehension. The use of graphic-rich materials is appropriate for certain therapies.

### PharmFacts

#### HEALTH DISPARITIES AND INEQUALITIES

- The rate of premature death due to stroke and coronary heart disease is higher among non-Hispanic Blacks than among non-Hispanic Whites;

- Rates for drug-induced death (from both legal and illegal drugs) is highest among American Indian, Alaskan Natives, and non-Hispanic Whites.

- The infant mortality rate for non-Hispanic black women is more than double that for non-Hispanic White women.

- Rates of blood pressure control among adults with hypertension are lowest among Mexican Americans.

- Diabetes is highest among non-Hispanic Blacks, Hispanics, persons with less than high school education, and those who are poor.

9.5 Genetic Influences on Pharmacotherapy

Although 99.8% of human DNA sequences are alike, the remaining 0.2% may result in significant differences in patients' ability to handle certain medications. Some of these differences are created when a mutation occurs in the portion of DNA responsible for encoding a certain metabolic enzyme. A single base mutation in DNA may result in an amino acid change in the enzyme, which alters its function. This creates a genetic polymorphism—two or more versions of the same enzyme. The best characterized genetic polymorphisms have been discovered in enzymes that metabolize drugs (CYP 450 enzymes) and in proteins that serve as receptors for drugs. Pharmacogenetics is the study of genetic variations that give rise to differences in drug response.

Genetic polymorphisms of CYP 450 enzymes are often identified in specific ethnic groups, because people in an ethnic group have been located in the same geographic area and have married others within the same group for hundreds of generations. Although genetic polymorphisms are generally rare in the overall population, specific ethnic groups can sometimes express a very high incidence of these defects. Some polymorphisms result in changes in drug metabolism, with patients being classified as either poor, intermediate, extensive, or ultrarapid metabolizers.

The relationship between genetic makeup and drug response has been documented for decades. One of the first polymorphisms was discovered in acetylttransferase, an enzyme that metabolizes isoniazid (INH), a drug prescribed for tuberculosis. The metabolic process, known as acetylation, occurs abnormally slowly in certain Caucasians. The reduced hepatic metabolism and subsequent clearance by the kidney can cause the drug to build to toxic levels in these patients, who are known as slow acetylators (poor metabolizers). The opposite effect, fast acetylation (extensive metabolizers), is found in many patients of Japanese descent.

Other enzyme polymorphisms have also been identified. Asian Americans are less able to metabolize codeine to morphine due to a genetic absence of the enzyme CYP2D6, a defect that interferes with the analgesic properties of codeine. Some persons of African American descent have decreased effects from beta-adrenergic antagonist drugs such as propranolol (Inderal), because of genetic variances in plasma renin levels. Another set of oxidation enzyme polymorphisms have been found that alter the response to warfarin (Coumadin) and diazepam (Valium). Table 9.1 summarizes the most common polymorphisms that impact pharmacotherapy. Expanding knowledge about the physiological impact of heredity on pharmacotherapy may someday allow for personalization of the treatment process.

9.6 Gender Influences on Pharmacotherapy

There are well-documented differences in the patterns of disease between males and females. For example, women tend to pay more attention to changes in health patterns and seek health care earlier than their male counterparts. However, many women do not seek medical attention for
Table 9.1 Genetic Polymorphisms of Drug-Metabolizing Enzymes

<table>
<thead>
<tr>
<th>Enzyme</th>
<th>Result of Polymorphism</th>
<th>Drugs Using This Metabolic Enzyme or Pathway</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetyltransferase</td>
<td>Slow acetylation in Scandinavians, Jews, North African Caucasians; fast acetylation in Japanese</td>
<td>caffeine, hydralazine, isoniazid, procainamide</td>
</tr>
<tr>
<td>CYP2A6</td>
<td>Reduced metabolism</td>
<td>nicotine; may influence nicotine dependence, smoking cessation response, and risk of lung cancer</td>
</tr>
<tr>
<td>CYP2B6</td>
<td>Increased or decreased metabolism (depending on subtype)</td>
<td>bupropion, efavirenz, cyclophosphamide, nefazodone</td>
</tr>
<tr>
<td>CYP2C8</td>
<td>Reduced metabolism</td>
<td>warfarin, sulfonpyrazone, hypoglycemics, NSAIDs</td>
</tr>
<tr>
<td>CYP2C19</td>
<td>Pootly metabolized in Asians and African Americans</td>
<td>amitriptyline, citalopram, clopidogrel, diazepam, imipramine, omeprazole, proguanil, voriconazole, warfarin</td>
</tr>
<tr>
<td>CYP2D6</td>
<td>Pootly metabolized in Asians and African Americans</td>
<td>amitriptyline, beta blockers, opioids, haloperidol, imipramine, morphine, perphenazine, tamoxifen</td>
</tr>
</tbody>
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potential cardiac symptoms, because heart disease has traditionally been considered to be a “man’s disease.” Alzheimer’s disease affects both men and women, but studies in various populations have shown that between 15 and 3 times as many women suffer from the disease. Alzheimer’s disease is becoming recognized as a major “women’s health issue,” along with osteoporosis, breast cancer, and fertility disorders.

Compliance with the prescribed medication regimen may be influenced by gender because the side effects are specific to either males or females. A common example is certain antihypertensive agents that have the potential to cause or worsen male impotence. Several drugs can cause gynecomastia, an increase in breast size, which can be embarrassing for males. Similarly, certain drugs can cause masculine side effects such as increased hair growth, which can be a cause of noncompliance in women taking these medications. Also in females, the estrogen contained in oral contraceptives causes an elevated risk of thromboembolic disorders. With effective communication, gender-specific concerns regarding drug adverse effects can be brought into the open so alternative drug therapies can be considered. As with so many areas of health care, appropriate patient teaching by the nurse is a key aspect in preventing or alleviating drug-related health problems.

Local and systemic responses to some medications can differ between genders. These response differences may be based on differences in body composition such as the fat-to-muscle ratio. In addition, cerebral blood flow variances between males and females may alter the response to certain analgesics. An example is the benzodiazepines given for anxiety; women experience slower elimination rates and this difference becomes more significant if the woman is taking oral contraceptives.

In the past, the majority of drug research studies were conducted using only male subjects. It was wrongly assumed that the conclusions of these studies applied in the same manner to women. The U.S. Food and Drug administration (FDA) now has formal policies that require the inclusion of subjects of both genders during drug development. This includes analyses of clinical data by gender, assessment of potential pharmacokinetic and pharmacodynamic differences between genders, and, when appropriate, conducting additional studies specific to women’s health.

Chapter Review

KEY Concepts

The numbered key concepts provide a succinct summary of the important points from the corresponding numbered section within the chapter. If any of these points are not clear, refer to the numbered section within the chapter for review.

9.1 To deliver effective treatment, the nurse must consider the total patient in a holistic context.
9.2 The psychosocial domain must be considered when delivering holistic care. Positive attitudes and high
expectations toward therapeutic outcomes in the patient may influence the success of pharmacotherapy.

9.3 Culture and ethnicity are two interconnected perspectives that can affect pharmacotherapy. Differences in diet, use of alternative therapies, and beliefs about health and disease can influence patient drug response.

9.4 Community and environmental factors affect health and the public's access to health care and pharmacotherapy. Inadequate access to health care resources and an inability to read or understand instructions may compromise treatment outcomes.

9.5 Genetic differences in metabolic enzymes that occur among different ethnic groups must be considered for effective pharmacotherapy. Differences in the structure of enzymes, called polymorphisms, can result in profound changes in drug response.

9.6 Gender can influence many aspects of health maintenance, promotion, and treatment, as well as medication response.

**REVIEW Questions**

1. The patient informs the nurse that he uses herbal compounds given by a family member to treat his hypertension. What is the most appropriate action by the nurse?
   1. Inform the patient that the herbal treatments will be ineffective.
   2. Obtain more information and determine whether the herbs are compatible with prescribed medications.
   3. Notify the health care provider immediately.
   4. Inform the patient that the health care provider will not treat him if he does not accept the use of conventional medicine only.

2. The nurse provides teaching about a drug to an older adult couple. To ensure that the instructions are understood, which of the following actions would be most appropriate for the nurse to take?
   1. Provide detailed written material about the drug.
   2. Provide labels and instructions in large print.
   3. Assess the patients' reading levels and have the patients "teach back" the instructions to determine understanding.
   4. Provide instructions only when family members are present.

3. The nurse understands that gender issues also influence pharmacotherapy. What are some important considerations for the nurse to remember about these differences?
   1. Men seek health care earlier than women.
   2. Women may not seek treatment for cardiac conditions as quickly as men.
   3. Women are more likely to stop taking medications because of side effects.
   4. All drug trials are conducted on male subjects.

4. The patient informs the nurse that she will decide whether she will accept treatment after she prays with her family and minister. What is the role of spirituality in drug therapy for this client?
   1. Irrelevant because medications act on scientific principles.
   2. Important to the patient's acceptance of medical treatment and response to treatment.
   3. Harmless if it makes the patient feel better.
   4. Harmful, especially if treatment is delayed.

5. Patients characterized as slow acetylators may experience what effects related to drug therapy?
   1. They are more prone to drug toxicity.
   2. They require more time to absorb enteral medications.
   3. They must be given liquid medications only.
   4. They should be advised to decrease protein intake.

6. A patient undergoing treatment for cancer complains about nausea and fatigue. In approaching this patient problem holistically, what actions would the nurse take? (Select all that apply.)
   1. Give an antinausea drug as ordered and place the patient on bed rest.
   2. Observe for specific instances of nausea or fatigue and report them to the oncologist.
   3. Take a medication history on the patient, noting specific medication or food triggers.
   4. Talk to the patient about the symptoms, the impact they have on daily activities, and techniques that have helped lessen the problem.
   5. Encourage the patient to use alternative therapies such as herbal products.
CRITICAL THINKING Questions

1. A 72-year-old African American patient with a heart disease who has been treated for atrial flutter, a type of cardiac dysrhythmia, is taking the anticoagulant, warfarin (Coumadin). The health care provider suspects that the patient has a genetic polymorphism that causes the drug to be poorly metabolized. What could the nurse do to assist in monitoring for this effect?

2. A 52-year-old female patient is admitted to the emergency department. She developed chest pressure, shortness of breath, anxiety, and nausea approximately four hours ago and now has chest pain. She tells the nurse that she “thought she had just overexerted herself gardening.” How might her gender have influenced her decision to seek treatment?

3. A 19-year-old male patient of Latin American descent presents to a health clinic for migrant farm workers. In broken English, he describes severe pain in his lower jaw. An assessment reveals two abscessed molars and other oral health problems. Discuss the possible reasons for this patient’s condition.

See appendix C for answers and rationales for all activities.

REFERENCES


Craig, H., & Wright, B. (2012). Nonadherence to prophylactic-negative attitudes toward doctors a strong predictor. Australian Family Physician, 41, 815–818


SELECTED BIBLIOGRAPHY


