**LEARNING OBJECTIVES**

- Differentiate among the signs and symptoms of common menstrual disorders.
- Develop a nursing care plan for the woman with primary amenorrhea.
- Outline patient teaching about premenstrual syndrome.
- Relate the pathophysiology of endometriosis to associated symptoms.
- Consider use of alternative therapies for menstrual disorders.
- Differentiate signs, symptoms, diagnoses, and management of women with bacterial and viral sexually transmitted infections.
- Outline patient teaching about premenstrual syndrome.
- Differentiate signs, symptoms, and management of selected vaginal infections.
- Review principles of infection control, including Standard Precautions and precautions for invasive procedures.
- Discuss the pathophysiology of selected breast conditions and malignant neoplasms of the breasts found in women.
- Discuss the emotional effects of benign and malignant neoplasms.
- Compare alternatives for treatment for the woman with a lump in her breast.

**KEY TERMS AND DEFINITIONS**

- amenorrhea: Absence or cessation of menstruation
- dysfunctional uterine bleeding (DUB): Excessive uterine bleeding with no demonstrable organic cause
- dysmenorrhea: Painful menstruation beginning 2 to 6 months after menarche, related to ovulation or to organic disease such as endometriosis, pelvic inflammatory disease, or uterine neoplasm
- endometriosis: Tissue closely resembling endometrial tissue located outside the uterus
- fibroadenoma: Firm, freely movable solitary, solid, benign breast tumor
- fibrocystic changes: Benign changes in breast tissue
- leiomyoma: Benign smooth muscle tumor
- lumpectomy: Removal of a wide margin of normal breast tissue surrounding a breast cancer
- menstrual flow: Abnormal bleeding from the uterus, particularly when it occurs at any time other than the menstrual period
- modified radical mastectomy: Surgery that includes removal of the breast and fascia over the pectoralis major muscle
- oligomenorrhea: Abnormally light or infrequent menstruation
- pelvic inflammatory disease (PID): Infection of internal reproductive structures and adjacent tissues usually secondary to sexually transmitted infections
- premenstrual syndrome (PMS): Syndrome of nervous tension, irritability, weight gain, edema, headache, mastalgia, dysphoria, and lack of coordination occurring during the last few days of the menstrual cycle preceding the onset of menstruation
- radical mastectomy: Surgery that includes total removal of the breast, as well as underlying pectoralis major and pectoralis minor muscles
- simple mastectomy: Surgery that includes removal of the breast without underlying muscle or fascial tissue
Throughout her life, the average woman is likely to have some concerns related to her menstrual and gynecologic health and will experience bleeding, pain, or discharge associated with her reproductive organs or functions. In addition, during a woman’s life span, she may experience infections associated with her reproductive or sexual life. Many women will seek out nurses as advisors, counselors, and health care providers for these concerns. Nurses must have accurate, up-to-date information to meet these women’s needs. This chapter provides information on common menstrual problems, sexually transmitted infections (STIs) and selected other infections that can affect reproductive functions, and benign breast conditions. Breast cancer is also included because it is the most common reproductive cancer occurring in women.

MENSTRUAL PROBLEMS

Women typically have menstrual cycles for approximately 40 years. Once the predictable pattern of monthly bleeding is established, women may worry about any deviation from that pattern, or what they have been told is normal for all menstruating women. A sign such as amenorrhea or excessive menstrual bleeding can be a source of severe distress and concern for a woman as she wonders what is wrong.

Amenorrhea

Amenorrhea, the absence or cessation of menstrual flow, is a clinical sign of a variety of disorders. Although the criteria used to determine when amenorrhea is a clinical problem are not universal, the following circumstances should generally be evaluated: (1) the absence of both menarche and secondary sexual characteristics by age 14; (2) the absence of menses by age 16, regardless of presence of normal growth and development (primary amenorrhea); or (3) a 6-month cessation of menses after a period of menstruation (secondary amenorrhea) (Harlow, 2000). Amenorrhea is most commonly a result of pregnancy, although it may occur from any defect or interruption in the hypothalamic-pituitary-ovarian-uterine axis (see Chapter 4). It may also result from anatomic abnormalities; other endocrine disorders, such as hypothyroidism or hyperthyroidism; chronic diseases, such as type 1 diabetes; medications, such as phenytoin (Dilantin); eating disorders; strenuous exercise; emotional stress; and oral contraceptive use.

Assessment of amenorrhea begins with a thorough history and physical examination. An important initial step is to confirm that the woman is not pregnant. Specific components of the assessment process depend on a woman’s age—adolescent, young adult, or perimenopausal—and whether or not she has previously menstruated.

Hypogonadotropic amenorrhea

Hypogonadotropic amenorrhea reflects a problem in the central hypothalamic-pituitary axis. In rare instances a pituitary lesion or genetic inability to produce follicle-stimulating hormone (FSH) and luteinizing hormone (LH) is at fault. More commonly it results from hypothalamic suppression as a result of two principal influences: stress (in the home, school, or workplace) or a body fat-to-lean ratio that is inappropriate for an individual woman, especially during a normal growth period (Parent-Stevens & Burns, 2000). Research has demonstrated a biologic basis for the relation of stress to physiologic processes. Exercise-associated amenorrhea can occur in women undergoing vigorous physical and athletic training (Sanborn, Horea, Siemers, & Dieringer, 2000) and is thought to be associated with many factors, including body composition (height, weight, and percentage of body fat); type, intensity, and frequency of exercise; nutritional status; and presence of emotional or physical stressors. Amenorrhea is one of the classic signs of anorexia nervosa, and the interrelatedness of disordered eating, amenorrhea, and premature osteoporosis has been described as the female athlete triad (Klepski, 2002). Calcium loss from bone, comparable to that seen in postmenopausal women, may occur with this type of amenorrhea.

Management. Counseling and education are primary interventions because many of the causes are potentially reversible (e.g., stress, weight loss for nonorganic reasons). When a stressor known to predispose a woman to hypothalamic amenorrhea is identified, initial management involves addressing the stressor. Together the woman and nurse plan how to decrease or discontinue medications known to affect menstruation, correct weight loss, deal more effectively with psychologic stress, and eliminate substance abuse. Deep breathing exercises and relaxation techniques are simple yet
Dysmenorrhea may last several hours or several days. The range and quality of discomfort several hours before onset of flow. The range and quality of discomfort associated with menses, and 7% to 15% report severe dysmenorrhea (Parent-Stevens & Burns, 2000); however, the amount of disruption in women’s lives is difficult to determine. It has been estimated that up to 10% of women with dysmenorrhea have severe enough pain to interfere with their functioning for 1 to 3 days a month. Menstrual problems, including dysmenorrhea, are more common in women who smoke and who are obese. Severe dysmenorrhea is also associated with early menarche, nulliparity, and stress (Stenchever et al., 2001). Traditionally dysmenorrhea is differentiated as primary or secondary. Symptoms usually begin with menstruation, although some women have discomfort several hours before onset of flow. The range and severity of symptoms are different from woman to woman and from cycle to cycle in the same woman. Symptoms of dysmenorrhea may last several hours or several days.

Cyclic perimenstrual pain and discomfort

Cyclic perimenstrual pain and discomfort (CPPD) is a new concept developed by a nurse science team for a research project for the Association of Women’s Health, Obstetric and Neonatal Nurses (Collins Sharp, Taylor, Thomas, Killeen, & Dawood, 2002). This concept includes dysmenorrhea, premenstrual syndrome (PMS), and premenstrual dysphoric disorder (PDD) as well as symptom clusters that occur before and after the menstrual flow starts. CPPD is a health problem that can have a significant impact on the quality of life for a woman. The following discussion focuses on the three main conditions of CPPD. See the Evidence-Based practice box for further discussion of the clinical guidelines for nursing practice for CPPD.

Dysmenorrhea

Dysmenorrhea, pain during or shortly before menstruation, is one of the most common gynecologic problems in women of all ages. Many adolescents have dysmenorrhea in the first 3 years after menarche. Young adult women ages 17 to 24 years are most likely to report painful menses. Between 30% and 40% of women report some level of discomfort associated with menses, and 7% to 15% report severe dysmenorrhea (Parent-Stevens & Burns, 2000); however, the amount of disruption in women’s lives is difficult to determine. It has been estimated that up to 10% of women with dysmenorrhea have severe enough pain to interfere with their functioning for 1 to 3 days a month. Menstrual problems, including dysmenorrhea, are more common in women who smoke and who are obese. Severe dysmenorrhea is also associated with early menarche, nulliparity, and stress (Stenchever et al., 2001). Traditionally dysmenorrhea is differentiated as primary or secondary. Symptoms usually begin with menstruation, although some women have discomfort several hours before onset of flow. The range and severity of symptoms are different from woman to woman and from cycle to cycle in the same woman. Symptoms of dysmenorrhea may last several hours or several days.

Primary dysmenorrhea

Primary dysmenorrhea is a condition associated with ovulatory cycles. Research has shown that primary dysmenorrhea has a biochemical basis and arises from the release of prostaglandins with menses. During the luteal phase and subsequent menstrual flow, prostaglandin F2 alpha (PGF2α) is secreted. Excessive release of PGF2α increases the amplitude and frequency of uterine contractions and causes vasospasm of the uterine arterioles, resulting in ischemia and cyclic lower abdominal cramps. Systemic responses to PGF2α include backache, weakness, sweats, gastrointestinal symptoms (anorexia, nausea, vomiting, and diarrhea), and central nervous system symptoms (dizziness, syncope, headache, and poor concentration). Pain usually begins at the onset of menstruation and lasts 8 to 48 hours (Stenchever et al., 2001).

Primary dysmenorrhea usually appears 6 to 12 months after menarche when ovulation is established. Anovulatory bleeding, common in the few months or years after menarche, is painless. Because both estrogen and progesterone are necessary for primary dysmenorrhea to occur, it is experienced only with ovulatory cycles. This problem is most commonly experienced by women in their late teens and early twenties; the incidence declines with age. Psychogenic factors may influence the onset and severity of pain. The role of bleeding and subsequent menstrual flow, prostaglandin F2 alpha (PGF2α) is secreted. Excessive release of PGF2α increases the amplitude and frequency of uterine contractions and causes vasospasm of the uterine arterioles, resulting in ischemia and cyclic lower abdominal cramps. Systemic responses to PGF2α include backache, weakness, sweats, gastrointestinal symptoms (anorexia, nausea, vomiting, and diarrhea), and central nervous system symptoms (dizziness, syncope, headache, and poor concentration). Pain usually begins at the onset of menstruation and lasts 8 to 48 hours (Stenchever et al., 2001).

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Management of primary dysmenorrhea

Management of primary dysmenorrhea depends on the severity of the problem and the individual woman’s response to various treatments. Important components of nursing care are information and support. Because menstruation is so closely linked to reproduction and sexuality, menstrual problems such as dysmenorrhea can have a negative influence on sexuality and self-worth. Nurses can correct myths and misinformation about menstruation and dysmenorrhea by providing facts about what is normal. Nurses must support their patients’ feelings of positive sexuality and self-worth.

Often, more than one alternative for alleviating menstral discomfort and dysmenorrhea can be offered, giving women options to try and decide which works best for them. Heat (heating pad or hot bath) minimizes cramping by increasing vasodilation and muscle relaxation and minimizing uterine ischemia. Massaging the lower back can reduce pain by relaxing paravertebral muscles and increasing pelvic blood supply. Soft, rhythmic rubbing of the abdomen (effleurage) may be useful because it provides distraction and an alternative focal point. Biofeedback, transcutaneous electrical nerve stimulation (TENS), progressive relaxation, Hatha yoga, acupuncture, and meditation also have been used to decrease menstrual discomfort although there is insufficient evidence to determine effectiveness (Proctor, Smith, Farquhar, & Stones, 2002).
Most women experience some perimenstrual symptoms, which can cause loss of work or school and extra medical visits and costs. Conventionally, research has focused on discrete aspects of menstrual changes, such as pain or negative affect. However, most women experience several symptoms simultaneously. A more comprehensive and functional concept of cyclic perimenstrual pain and discomfort (CPPD) includes the symptom clusters that occur throughout the luteal phase and menstruation. Up to 100 perimenstrual symptoms have been identified.

OBJECTIVES

- Many women do not seek medical advice about CPPD, and many health care providers are poorly informed about CPPD management. Women often use over-the-counter treatments ineffectively. Nurses are ideally positioned to offer first-line screening and advice about management of CPPD. The Association of Women’s Health, Obstetric and Neonatal Nurses (AWHONN) selected CPPD as a focus for its Research-Based Practice project, with the goal of providing guidelines for nursing practice.

METHODS

- The AWHONN science team researched CINAHL, MEDLINE, and the Cochrane databases, as well as references. Search keywords included cyclic pain, pelvic pain, comfort, pain guidelines, and dysmenorrhea. Thirty-three relevant research articles, dated 1992 to 1999, were selected, ranging from case studies to clinical trials.

Statistical Analyses

- Because the studies were so varied, the research team analyzed the data holistically. Three nursing diagnoses emerged: perimenstrual cyclic pain, perimenstrual discomfort, and perimenstrual negative affect.

FINDINGS

- Research-based nursing interventions fell into six categories:
  1. Fundamental symptom management: Principles of general pain management and assisting with coping enhancement and mutual goal setting are appropriate for CPPD.
  2. Self-monitoring: Instruction on daily tracking of symptoms and stressors increases self-esteem and efficacy.
  3. Self-regulation:
     a. Pharmacologic agents had the strongest research. Nonsteroidal antiinflammatory drugs (NSAIDs) and low-dose, combined oral contraceptives were very effective.
     b. Nutritional supplements were supported by moderately good evidence.
        i. Calcium, 1200 mg/day, may significantly decrease premenstrual syndrome symptoms by the third cycle.
        ii. Magnesium helps stabilize blood sugar and decreases constipation and bloating.
     c. Behavioral—cognitive: There was some evidence of symptom relief with daily practice of relaxation, breathing, stretching, meditation, or guided imagery.
  4. Self-Modification:
     a. Nutritional: Eliminating smoking, alcohol, salt, caffeine, and sugars, eating frequent small meals, and drinking six to eight glasses of fluids a day resulted in some improvement in symptoms. Moderate evidence supported a program of multivitamins and minerals, which may be individualized to include vitamin E, essential fatty acids, B-complex vitamins, calcium, and amino acids L-tyrosine and L-tryptophan.
     b. Research was equivocal that exercise may increase blood flow, metabolism, and endorphins.
     c. Topical—cutaneous: The strongest research supported the use of Transcutaneous Electrical Nerve Stimulation (TENS), which may disrupt the sensory perception of pain, combined with NSAIDs. Moderately strong research backed the use of abdominal heat and massage, which may increase blood flow. Weaker evidence showed some pain relief using acupuncture points at the abdomen, back, and inner ankle.
     d. Behavioral—cognitive: There was some evidence of symptom relief with daily practice of relaxation, breathing, stretching, meditation, or guided imagery.
  5. Environmental: Time management and communication skills helped somewhat to modify the stressors that compound CPPD.
  6. Referral: Chinese herbs, chiropractic treatment, acupuncture, and homeopathy have shown some promise anecdotally, but lack strong evidence yet.

LIMITATIONS

- The complexity of CPPD, combined with the range of qualitative and quantitative studies made synthesis of the literature a Herculean task. Each woman has her own cluster of discomforts each cycle, and the treatment must be as dynamic as the symptoms. No critical pathway or decision tree can be established yet. Treatment is still an art, with some science.

IMPLICATIONS FOR PRACTICE

- CPPD is a quality-of-life issue for women. The authors recommended routine screening for CPPD, specifically pelvic pain and other discomforts, and efficacy of self-treatment. Individualized, multimodal management should produce treatment options based on the strongest evidence.

IMPLICATIONS FOR FURTHER RESEARCH

- Further research, especially randomized, controlled complementary and alternative medicine research is needed to yield more generalizability to the studies. Possible combinations of therapies may show promise for symptom relief.

Exercise has been found to help relieve menstrual discomfort through increased vasodilation and subsequent decreased ischemia; release of endogenous opiates, specifically beta-endorphins; suppression of prostaglandins; and shunting of blood flow away from the viscera, resulting in less pelvic congestion. Specific exercises that nurses can suggest include pelvic rock and heels-over-the-head yoga position.

In addition to maintaining good nutrition at all times, specific dietary changes may be helpful in decreasing some of the systemic symptoms associated with dysmenorrhea. Decreased salt and refined sugar intake 7 to 10 days before expected menses may reduce fluid retention. Natural diuretics, such as asparagus, cranberry juice, peaches, parsley, or watermelon may help reduce edema and related discomforts. Decreasing red meat intake may also help minimize dysmenorrheal symptoms.

Medications used to treat primary dysmenorrhea include prostaglandin synthesis inhibitors, primarily non-steroidal antiinflammatory drugs (NSAIDs) (Parent-Stevens & Burns, 2000) (Table 5-1). NSAIDs are most effective if started several days before menses or at least by the onset of bleeding. All NSAIDs have potential gastrointestinal side effects, including nausea, vomiting, and indigestion. All women taking NSAIDs should be warned to report dark-colored stools because this may be an indication of gastrointestinal bleeding.

If one NSAID is ineffective, often a different one may be effective. If the second drug is unsuccessful after a 6-month trial, combined oral contraceptives (COCs) may be used. Women with a history of aspirin sensitivity or allergy should avoid all NSAIDs.

Combined OCs prevent ovulation and can decrease the amount of menstrual flow, which can decrease the amount of prostaglandin, thus decreasing dysmenorrhea. There is evidence that combined OCs can effectively treat dysmenorrhea (Proctor, Roberts, & Farquhar, 2001). Combined OCs may be used in place of NSAIDs if the woman wants oral contraception and has primary dysmenorrhea. OCs have side effects and women who do not need or want them for contraception may not wish to use them for dysmenorrhea. OCs also may be contraindicated for some women.

Over-the-counter (OTC) preparations that are indicated for primary dysmenorrhea include the same active ingredients (e.g., ibuprofen, naproxen sodium) as prescription preparations. However, the labeled recommended dose may besubtherapeutic. Preparations containing acetaminophen are even less effective because acetaminophen does not have the antiprostaglandin properties of NSAIDs.

Herbal preparations have long been used for management of menstrual problems including dysmenorrhea (Table 5-2). Herbal medicines can be valuable in treating dysmenorrhea; however, it is essential that women understand that these therapies are not without potential toxicity and may cause drug interactions and that research is inconclusive about the effectiveness of use (Wilson & Murphy, 2001).

Secondary dysmenorrhea is acquired menstrual pain that develops later in life than primary dysmenorrhea, typically after age 25. It is associated with pelvic pathology such as adenomyosis, endometriosis, pelvic inflammatory disease (PID), endometrial polyps, submucous or interstitial myomas (uterine fibroids), or use of an intrauterine device (IUD). Pain often begins a few days before menses, but it can be present at ovulation and continue through the first days of menses or start after menstrual flow has begun. In contrast to primary dysmenorrhea, the pain of secondary dysmenorrhea is often characterized by dull, lower abdominal aching radiating to the back or thighs. Often, women experience feelings of bloating or pelvic fullness. Treatment is directed toward removal of the underlying pathology. Many of the measures described for pain relief of primary dysmenorrhea are also helpful for women with secondary dysmenorrhea.

Premenstrual Syndrome
About 85% of women experience mood and/or somatic symptoms that occur with their menstrual cycles (American College of Obstetricians and Gynecologists [ACOG], 2000). It is difficult to establish a universal definition of premenstrual syndrome (PMS), as so many symptoms have been associated with the condition, and at least two different syndromes have been recognized: PMS and premenstrual dysphoric disorder (PDD). PMS is a complex, poorly understood condition that includes one or more of a large number (more than 100) of physical and psychological symptoms beginning in the luteal phase of the menstrual cycle, occurring to such a degree that lifestyle or work is affected, and followed by a symptom-free period. Symptoms include fluid retention (abdominal bloating, pelvic fullness, edema of the lower extremities, breast tenderness, and weight gain); behavioral or emotional changes (depression, crying spells, irritability, panic attacks, and impaired ability to concentrate); premenstrual cravings (sweets, salt, increased appetite, and food binges); and headache, fatigue, and backache. PDD is a more severe variant of PMS in which women have marked irritability, dysphoria, mood lability, anxiety, fatigue, appetite changes, and a sense of feeling overwhelmed (Elliot, 2002).

A diagnosis of PMS is made only if the following criteria are met:
- Symptoms occur in the luteal phase and resolve within a few days of menses onset.
- A symptom-free period occurs in the follicular phase.
- Symptoms are recurrent.
- The cause of PMS is unknown. It has been theorized that PMS has a significant psychologic component or may result from cultural beliefs that lead to the menstrual cycle being associated with a variety of negative reactions. In reality PMS is most likely not a single disorder but rather a collection of different problems (Pritham, 2002). There is much controversy regarding PMS. The existence, diagnosis, and etiology
### TABLE 5-1
**Nonsteroidal Antiinflammatory Agents Used to Treat Dysmenorrhea**

<table>
<thead>
<tr>
<th>DRUG</th>
<th>BRAND NAME AND STATUS</th>
<th>RECOMMENDED DOSAGE†</th>
<th>COMMON SIDE EFFECTS‡</th>
<th>COMMENTS</th>
<th>CONTRAINDICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diclofenac</td>
<td>Cataflam Rx</td>
<td>60 mg tid or 100 mg initially; then 50 mg tid to 150 mg/day</td>
<td>Nausea, diarrhea, constipation, abdominal distress, dyspepsia, flatulence</td>
<td>Enteric coated: immediate release</td>
<td>For all NSAIDs: Do not give if patient has hemophilia or bleeding ulcers; do not give if patient has had an allergic or anaphylactic reaction to aspirin or another NSAID; do not give if patient is taking anticoagulant medication</td>
</tr>
<tr>
<td>Ibuprofen</td>
<td>Motrin Rx, Advil OTC, Nuprin OTC, Motrin IB OTC</td>
<td>400 mg q4-6h; 200 mg q4-6h to 1200 mg/day</td>
<td>Nausea, dyspepsia, rash, pruritus</td>
<td>If GI upset occurs, take with food, milk, or antacids; avoid alcoholic beverages; do not take with aspirin</td>
<td>See ibuprofen</td>
</tr>
<tr>
<td>Ketoprofen</td>
<td>Orudis Rx, Orudis KT OTC, Actron OTC</td>
<td>25-50 mg q6-8h to 300 mg/day; 12.5 mg q6-8h to 75 mg/day</td>
<td>Nausea, diarrhea, constipation, abdominal distress, dyspepsia, flatulence</td>
<td>See ketoprofen</td>
<td>See ibuprofen</td>
</tr>
<tr>
<td>Meclofenamate</td>
<td>Meclomen Rx</td>
<td>100 mg tid to 300 mg</td>
<td>See ketoprofen</td>
<td>Very potent and effective prostaglandin-synthesis inhibitor Antagonizes already formed prostaglandins Increased incidence of adverse GI side effects</td>
<td></td>
</tr>
<tr>
<td>Mefenamic acid</td>
<td>Ponstel Rx</td>
<td>50 mg initially; then 250 mg q6-8h to 1000 mg/day</td>
<td>See ketoprofen</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Naproxen</td>
<td>Naprosyn Rx</td>
<td>500 mg initially, then 250 mg q6-8h to 1250 mg/day</td>
<td>See ibuprofen</td>
<td>See ibuprofen</td>
<td></td>
</tr>
<tr>
<td>Naproxen sodium</td>
<td>Anaprox Rx</td>
<td>550 mg initially, then 275 mg q6-8h to 1375 mg/day</td>
<td>See ibuprofen</td>
<td>See ibuprofen</td>
<td></td>
</tr>
</tbody>
</table>


†Dosages are current recommendations and should be verified before use. Recommended dosages for over-the-counter preparations are generally less than recommendations for therapeutic dosages. As needed dosing is recommended by manufacturer; scheduled dosing may be more effective. Risk with all NSAIDs is gastrointestinal ulceration, possible bleeding, and prolonged bleeding time. Incidence of side effects is dose related. Reported incidence, 3% to 9%.
of PMS are hotly and widely debated. Readers are encouraged to explore current feminist, medical, and social science literature for more information on these topics.

Management

There is little agreement on management. A careful, detailed history and daily log of symptoms and mood fluctuations spanning several cycles may give direction to a plan of management. Any changes that assist a woman with PMS to exert control over her life have a positive impact. For this reason, lifestyle changes are often effective in the treatment of PMS.

Education is an important component of the management of PMS. Nurses can advise women that self-help modalities often result in significant symptom improvement. Women have found a number of complementary and alternative therapies to be useful in managing the symptoms of PMS. Diet and exercise changes are a useful way to begin and provide symptom relief for some women. Nurses can suggest that women not smoke and limit their consumption of refined sugar (less than 5 tbsp/day), salt (less than 3 g/day), red meat (up to 3 oz/day), alcohol (less than 1 oz/day), and caffeinated beverages. They can be encouraged to include whole grains, legumes, seeds, nuts, vegetables, fruits, and vegetable oils in their diet. Three small-to-moderate-sized meals and three small snacks a day that are rich in complex carbohydrates and fiber have been reported to improve symptoms (Jones, 2001). Use of natural diuretics (see section on dysmenorrhea management) may help reduce fluid retention as well. Nutritional supplements may assist in symptom relief. Calcium (1000 to 1200 mg daily), magnesium (300 to 400 mg daily), and vitamin B6 (100 to 150 mg daily) have been shown to be moderately effective in relieving symptoms, to have few side effects, and to be safe. Daily supplements of evening primrose oil are thought to be useful in relieving breast symptoms with minimal side effects. Regular exercise (aerobic exercise three to four times a week), especially in the luteal phase, is widely recommended for relief of PMS symptoms (Rapkin, 2003). A monthly program that varies in intensity and type of exercise according to PMS symptoms is best. Women who exercise regularly seem to have less premenstrual anxiety than do nonathletic women. It is thought that aerobic exercise increases beta-endorphin levels to offset symptoms of depression and elevate mood. Yoga,

### Table 5-2

<table>
<thead>
<tr>
<th>SYMPTOMS OR INDICATIONS</th>
<th>HERBAL THERAPY</th>
<th>ACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Menstrual cramping</td>
<td>Black Haw</td>
<td>Uterine antispasmodic</td>
</tr>
<tr>
<td>Premenstrual discomfort</td>
<td>Ginger</td>
<td>Antiinflammatory</td>
</tr>
<tr>
<td></td>
<td>Black cohosh root</td>
<td>Estrogen-like LH suppressant; binds to estrogen receptors</td>
</tr>
<tr>
<td>Tension, breast pain</td>
<td>Chaste tree fruit</td>
<td>Decreases prolactin levels</td>
</tr>
<tr>
<td>Dysmenorrhea</td>
<td>Bugleweed</td>
<td>Antigonadotropic; decreases prolactin levels</td>
</tr>
<tr>
<td></td>
<td>Potentilla</td>
<td>Uterotonic</td>
</tr>
<tr>
<td>Menorrhagia</td>
<td>Dong quai</td>
<td>Antiinflammatory; possibly analgesic activity</td>
</tr>
<tr>
<td></td>
<td>Shepherd’s purse</td>
<td>Uterotonic</td>
</tr>
</tbody>
</table>

acupuncture, hypnosis, chiropractic therapy, and massage therapy have all been reported to have a beneficial effect on PMS. Herbal therapies have long been used to treat PMS, specific suggestions are found in Table 5-2.

Nurses can explain the relation between cyclic estrogen fluctuation and changes in serotonin levels, that serotonin is one of the brain chemicals that assist in coping with normal life stresses, and how the different management strategies recommended help maintain serotonin levels. Counseling, in the form of support groups or individual or couple counseling, may be helpful. Stress reduction techniques also may assist with symptom management (Rapkin, 2003). If these strategies do not provide significant symptom relief in 1 to 2 months, medication is often begun. Many medications have been used in treatment of PMS, but no single medication alleviates all PMS symptoms. Medications often used in the treatment of PMS include diuretics, prostaglandin inhibitors (NSAIDs), progesterone, and OCPs. Fluoxetine (Sarafem or Prozac, 20 mg/day), a selective serotonin reuptake inhibitor (SSRI), is the only U.S. Food and Drug Administration (FDA)-approved agent for PMS. Use of this medication results in a decrease in emotional symptoms, especially depression (Jones, 2001; Lin & Thompson, 2001).

**Endometriosis**

Endometriosis is characterized by the presence and growth of endometrial tissue outside of the uterus. The tissue may be implanted on the ovaries, cul-de-sac, uterine ligaments, rectovaginal septum, sigmoid colon, pelvic peritoneum, cervix, or inguinal area (Fig. 5-1). Endometrial lesions have been found in the vagina and in surgical scars; on the vulva, perineum, and bladder; and in sites far from the pelvic area, such as the thoracic cavity, gallbladder, and heart. A chocolate cyst is a cystic area of endometriosis in the ovary. The dark coloring of the cyst’s contents is caused by old blood. Endometrial tissue contains glands and stoma and responds to cyclic hormonal stimulation in the same way that the uterine endometrium does but often out of phase with it. During the proliferative and secretory phases of the cycle, the endometrial tissue grows. During or immediately after menstruation, the tissue bleeds, resulting in an inflammatory response with subsequent fibrosis and adhesions to adjacent organs.

Endometriosis is a common gynecologic problem, affecting from 5% to 15% of women of reproductive age (Stenchever et al., 2001). Although the condition usually develops in the third or fourth decade of life, endometriosis has been found in 4% to 10% of adolescents with disabling pelvic pain or abnormal vaginal bleeding (Motta, 2004). The condition is found equally in Caucasian and African-American women, is slightly more prevalent in Asian women, and may have a familial tendency for development (Nakad & Isaacson, 2002; Stenchever et al., 2001). Endometriosis may worsen with repeated cycles, or it may remain asymptomatic and undiagnosed, eventually disappearing after menopause.

Several theories to account for the cause of endometriosis have been suggested, yet the etiology and pathology of this condition continue to be poorly understood. One of the most widely accepted, long-debated theories is transtubal migration or retrograde menstruation. According to this theory, endometrial tissue is regurgitated or mechanically transported from the uterus during menstruation to the uterine tubes and into the peritoneal cavity, where it implants on the ovaries and other organs.

Symptoms vary among women, from nonexistent to incapacitating. Severity of symptoms can change over time and may be disconnected from the extent of the disease. The major symptoms of endometriosis are dysmenorrhea and deep pelvic dyspareunia (painful intercourse). Women also experience chronic noncyclic pelvic pain, pelvic heaviness, or pain radiating into the thighs. Many women report bowel symptoms such as diarrhea, pain with defecation, and constipation secondary to avoiding defecation because of the pain. Less common symptoms include abnormal bleeding (hypermenorrhea, menorrhagia, or premenstrual staining) and pain during exercise as a result of adhesions (Lemaire, 2004). Women who have endometriosis may also have other conditions such as chronic fatigue syndrome, fibromyalgia, endocrine disorders, and autoimmune disorders (Conversations with Colleagues, 2002-2003).

Impaired fertility may result from adhesions around the uterus that pull the uterus into a fixed, retroverted position. Adhesions around the uterine tubes may block the fimbriated ends or prevent the spontaneous movement that carries the ovum to the uterus or blocks the fimbriated ends.
Alterations in Cyclic Bleeding

Women often experience changes in amount, duration, interval, or regularity of menstrual cycle bleeding. Commonly, women worry about menstruation that is infrequent or prolonged. However, the bleeding is related to contraceptive options. If bleeding is not prevent it, reproductive capacity should be retained through careful removal by surgery or laser therapy of all endometrial tissue possible and with retention of ovarian function (Nakad & Isacson, 2002).

Short of TAH with BSO, endometriosis recurs in approximately 40% of women, regardless of the form of treatment. Therefore for many women, endometriosis is a chronic disease with conditions such as chronic pain or infertility. Counseling and education are critical components of nursing care of women with endometriosis. Women need an honest discussion of treatment options with potential risks and benefits of each option reviewed. Because pelvic pain is a subjective, personal experience that can be frightening, support is important. Sexual dysfunction resulting from painful intercourse (dyspareunia) may be present and may necessitate referral for counseling. Support groups for women with endometriosis may be found in some locations (see Resources at the end of the chapter). The nursing care measures discussed in the section on dysmenorrhea are appropriate for managing chronic pelvic pain associated with endometriosis (see Plan of Care).

Management

Treatment is based on the severity of symptoms and the goals of the woman or couple. Women without pain who do not want to become pregnant need no treatment. Women with mild pain who may desire a future pregnancy may use NSAIDs for pain relief. Women who have severe pain and can postpone pregnancy may be treated with OCPs that have a low estrogen-to-progesterin ratio to shrink endometrial tissue. However, when this therapy is stopped, women often experience high rates of recurrence of pain and other symptoms.

Hormonal antagonists that suppress ovulation and reduce endogenous estrogen production and subsequent endometrial lesion growth are currently used to treat mild to severe endometriosis in women who wish to become pregnant at a future time. Gonadotropin-releasing hormone (GnRH) agonist therapy (leuprolide, nafarelin [Synarel], goserelin acetate [Zoladex]) acts by suppressing pituitary gonadotropin secretion. FSH and LH stimulation to the ovary declines noticeably, and ovarian function decreases significantly. The hyperestrogenism results in hot flashes in almost all women. In addition, there may be minor bone loss, most of which is reversible within 12 to 18 months after the medication is stopped. Leuprolide (3.75 mg intramuscular injection given once a month) or nafarelin (200 mg administered twice daily by nasal spray) are both effective and well tolerated. Both medications reduce endometrial lesions and pelvic pain associated with endometriosis and have posttreatment pregnancy rates similar to that of danazol therapy (Stenchever et al., 2001). Common side effects of these drugs are those of natural menopause—hot flashes and vaginal dryness. Some women report headaches and muscle aches.

Danazol (Dianocrine), a mildly androgenic synthetic steroid, suppresses FSH and LH secretion, thus producing anovulation with resulting decreased secretion of estrogen and progesterone and regression of endometrial tissue. Both effects reduce endometriosis pain. Common side effects of these drugs are those of natural menopause—hot flashes and vaginal dryness. Some women report headaches and muscle aches.

Danazol may cause scanty menstrual flow and midcycle spotting. Progestin intramuscular injections and implants can also cause midcycle bleeding. A single episode of heavy bleeding may signal an early pregnancy loss such as a miscarriage or ectopic pregnancy. This type of bleeding is often thought to be a period that is heavier than usual, perhaps delayed, and is associated with abdominal pain or pelvic discomfort. When early pregnancy loss is suspected, a hematocrit and pregnancy test should be done.

Uterine leiomyomas (fibroids or myomas) are a common cause of menorrhagia. Fibroids are benign tumors of the smooth muscle of the uterus whose etiology is unknown. Fibroids occur in approximately one fourth of women of reproductive age; the incidence of fibroids is two to three times higher in African-American women than in Caucasian or Hispanic women (Friedman & Carlson, 2002). Other uterine growths ranging from endometrial polyps to adenocarcinoma and endometrial cancer are common causes of heavy menstrual bleeding, as well as intermenstrual bleeding.

Treatment for menorrhagia depends on the cause of the bleeding. If the bleeding is related to contraceptive method, the nurse provides factual information and reassurance and discusses other contraceptive options. If bleeding is
related to presence of fibroids, the degree of disability and discomfort associated with the fibroids and the woman’s plans for childbearing will influence treatment decisions. Treatment options include medical and surgical management. Most fibroids can be monitored by frequent examinations to judge growth, if any, and correction of anemia, if present. Women with metrorrhagia should be warned not to use aspirin because of its tendency to increase bleeding. Medical treatment is directed toward temporarily reducing symptoms, shrinking the myoma, and reducing its blood supply (Stenchever et al., 2001). This reduction is often accomplished with the use of a GnRH agonist. If the woman wishes to retain childbearing potential, a myomectomy may be done. Myomectomy, or removal of the tumors only, is particularly difficult if multiple myomas must be removed. If the woman does not want to preserve her childbearing function, or if she has severe symptoms (severe anemia, severe pain, considerable disruption of lifestyle), hysterectomy or endometrial ablation (laser surgery or cryosurgery) may be done.

**Dysfunctional uterine bleeding**

*Abnormal uterine bleeding (AUB)* is any form of uterine bleeding that is irregular in amount, duration, or timing and not related to regular menstrual bleeding. Box 5-1 lists possible causes of AUB. Although often used interchangeably, the terms AUB and dysfunctional uterine bleeding (DUB) are not synonymous. *Dysfunctional uterine bleeding* is a subset of AUB defined as “excessive uterine bleeding with no demonstrable organic cause, genital or extra-genital” (Stenchever et al., 2001). DUB is most commonly caused by anovulation. When there is no surge of LH or if insufficient progesterone is produced by the corpus luteum to support the endometrium, it will begin to involute and shed. This most often occurs at the extremes of a woman’s reproductive years—when the menstrual cycle is just beginning to stabilize and ovulation occurs at menarche or when it draws to a close at menopause. DUB can also be found with any condition causing chronic anovulation associated with continuous estrogen production. Such conditions include obesity, hyperthyroidism and hypothyroidism, polycystic ovarian syndrome, and any of the endocrine conditions discussed in the sections on amenorrhea and oligomenorrhea. A diagnosis of DUB is made only after all other causes of abnormal menstrual bleeding have been ruled out (American College of Nurse-Midwives [ACNM], 2002).

The most effective medical treatment of acute bleeding episodes of DUB is administration of oral or intravenous estrogen. A dilation and curettage may be done if the bleeding
has not stopped in 12 to 24 hours. An oral conjugated estrogen and progestin regimen is usually given for at least 3 months. If the woman wants contraception, she should continue to take OCPs. If she has no need for contraception, the treatment may be stopped to assess the woman’s bleeding pattern. If her menses does not resume, a progestin regimen (e.g., medroxyprogesterone, 10 mg each day for 10 days before the expected date of her menstrual period) may be prescribed after ruling out pregnancy. This is done to prevent persistent anovulation with chronic unopposed endogenous estrogen hyperstimulation of the endometrium, which can result in eventual atypical tissue changes.

If the recurrent, heavy bleeding is not controlled by hormonal therapy, ablation of the endometrium through laser treatment may be performed (Stenchever et al., 2001). Nursing roles include informing women of their options, counseling and education as indicated, and referring to the appropriate specialists and health care services.

**CARE MANAGEMENT**

**Assessment and Nursing Diagnoses**

In addition to taking a careful menstrual, obstetric, sexual, and contraceptive history, the nurse should explore the woman’s perceptions of her condition, cultural or ethnic influences, experiences with other caregivers, lifestyle, and patterns of coping (see Guidelines/Guías box). The amount of pain or bleeding experienced and its effect on daily activities should be evaluated. Home remedies and prescriptions to relieve discomfort are noted. A symptom diary, in which the woman records emotions, behaviors, physical symptoms, diet, and exercise and rest patterns, is a useful diagnostic tool.

Nursing diagnoses for the woman experiencing menstrual disorders include the following:

- **Risk for ineffective individual coping related to**
  - insufficient knowledge of the cause of the disorder —emotional and physiologic effects of the disorder
- **Deficient knowledge related to**
  - self-care —available therapy for the disorder
  - sex-related —sexual dysfunction
- **Risk for disturbed body image related to**
  - others’ perception of her discomfort —inability to conceive
- **Acute or chronic pain related to**
  - menstrual disorder

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  - others’ perception of her discomfort —inability to conceive
- **Acute or chronic pain related to**
  - menstrual disorder

**Expected Outcomes of Care**

After data collection and review, mutual expected outcomes are established and a plan of care is developed. Expected outcomes for the woman are that she will do the following:

- Verbalize her understanding of reproductive anatomy, etiology of her disorder, medication regimen, and diary use
- Verbalize understanding and accept her emotional and physical responses to her menstrual cycle
- Develop personal goals that benefit her emotionally and physically
Common Reproductive Concerns

111

• Choose appropriate therapeutic measures for her menstrual problems
• Adapt successfully to the condition, if cure is not possible

Plan of Care and Interventions
During the history and diagnostic workup, the clinician’s concern and acceptance of the woman’s symptoms as valid are in themselves therapeutic. Data from the daily diary of emotional status, subjective feelings, and physical state are correlated with physiologic changes. If the woman has a partner, both the woman and her partner keep separate diaries that include how each perceives the other’s responses day by day. Through the diaries, feelings are vented, problems are identified and clarified, insights occur, and possible solutions begin to develop. The clinician facilitates insights and suggests therapeutic options. The woman (couple) makes choices considered best for her (them). Nurses need to discuss the options available to women with menstrual disorders. They must understand basic information about the anatomy and physiology, pathophysiology, psychologic impact, and treatment for the condition.

Support groups are an important resource. Nurses can use a local women’s center or clinic to bring together women who want to learn more about their condition and support each other (see Resources at end of this chapter).

Evaluation
The nurse can be assured that care has been effective when the woman reports improvement in the quality of her life, skill in self-care, and a positive self-concept and body image.

INFECTIONS
Infections of the reproductive tract can occur throughout a woman’s life and are often the cause of significant reproductive morbidity including ectopic pregnancy and tubal factor infertility (Centers for Disease Control and Prevention [CDC], 2002b). The direct economic costs of these infections can be substantial, and the indirect costs equally overwhelming. Some consequences of maternal infection, such as infertility, last a lifetime. The emotional costs may include damaged relationships and lowered self-esteem.

Sexually Transmitted Infections
Sexually transmitted infections (STIs) are infections or infectious disease syndromes primarily transmitted by sexual contact (Box 5-2). The term sexually transmitted infection includes more than 25 infectious organisms that are transmitted through sexual activity and the dozens of clinical syndromes that they cause. Despite the U.S. Surgeon General targeting STIs as a priority for prevention and control efforts, STIs are among the most common health problems in the United States today, with an estimated 15 million people in the United States being infected with STIs every year (Workowski, Levine, & Wasserheit, 2002). The most common STIs in women are discussed in this chapter. Effects on pregnancy and the fetus are discussed in Chapter 23. Neonatal effects are discussed in Chapter 27.

Prevention
Preventing infection (primary prevention) is the most effective way of reducing the adverse consequences of STIs for women. Prompt diagnosis and treatment of current infections (secondary prevention) also can prevent personal complications and transmission to others. Preventing the spread

GUIDELINES/GUÍAS
Menstruation
• At what age did you begin to menstruate?
• ¿A qué edad empezó a menstruar?
• When was your last menstrual cycle?
• ¿Cuándo fue su última menstruación (regla)?
• Was it normal?
• ¿Fue normal?
• Do you have pains with your period?
• ¿Tiene algún dolor con la menstruación (regla)?
• How many days does your period last?
• ¿Por cuántos días dura su menstruación (regla)?
• Is the flow light or heavy?
• ¿Tiene mucha o poquita hemorragia durante su menstruación (regla)?
and that she is at risk for infection. Unfortunately, most must believe that catching a disease will be serious for her attention given to her specific risk factors. and should be tailored to the individual woman, with at–

from sexual activity when STI-related symptoms are present) to prevent contracting or transmitting STIs (e.g., refraining should include descriptions of specific actions to be taken spoken, or lifestyle (CDC, 2002a). Prevention messages aimed at deterring infection. Risk-free options include com-
plete abstinence from sexual activities that transmit semen, blood, or other body fluids or that allow for skin-to-skin con-
tact (Hatcher et al., 2004). Alternatively, involvement in a mutually monogamous relationship with an uninfected part-
ner also eliminates the risk of contracting STIs. 

Safer sex practices. An essential component of primary prevention is counseling women regarding safer sex practices, including knowledge of her partner, reduction of number of partners, low risk sex, and avoiding the exchange of body fluids.

No aspect of prevention is more important than knowing one’s partner. Reducing the number of partners and avoiding partners who have had many previous sexual partners decreases a woman’s chance of contracting an STI. Deciding not to have sexual contact with casual acquaintances also may be helpful. Discussing each new partner’s previous sexual his-
tory and exposure to STIs will augment other efforts to re-
duce risk; however sexual partners are not always truthful about their sexual history. Critically important is whether or not male partners resist wearing condoms. Counseling on ways to negotiate with the partner about condom use may be helpful. For example, talking about condom use at a time removed from sexual activity may make it easier to bring up the subject.

Women should be taught low risk sexual practices and which sexual practices to avoid. Mutual masturbation is low risk as long as bodily fluids come in contact only with in-
tact skin. Caressing, hugging, body rubbing, massage, and hand-to-genital touching are low risk behaviors. Anal-genital intercourse, anal-oral contact, and anal digital activity are high risk sexual behaviors and should be avoided.

Currently, the sole physical barrier promoted for the pre-
vention of sexual transmission of STI infections is the con-
don. Nurses can encourage women to have sexual partners use condoms by first discussing the subject with them. Such a discussion gives women permission to discuss any con-
cerns, misconceptions, or hesitations they may have about using condoms. Women need to know how to purchase and use condoms. Information to be discussed includes impor-
tance of using latex rather than natural skin condoms. The nurse should remind women that only condoms with a cur-
rent expiration date should be used and that they should be stored away from high heat. Women may choose to safely carry condoms in wallets, in shoes, or inside a bra. Women can be taught the differences among condoms, price ranges,
sized, and where they can be purchased. Instructions for how to apply a condom are found in Chapter 6. Women should be reminded to use a condom only one time and with every sexual encounter.

The female condom—a lubricated polyurethane sheath with a ring on each end that is inserted into the vagina—has been shown in laboratory studies to be an effective mechanical barrier to viruses, including human immunodeficiency virus (HIV). Although no clinical studies have been completed to evaluate the efficacy of female condoms in protecting against STIs, the CDC (2002a) states that, when used correctly and consistently, the female condom may substantially reduce STI risk and recommends its use when a male condom cannot be used properly. What is important and should be stressed by nurses is the consistent use of condoms for every act of sexual intimacy when there is the possibility of transmission of disease.

Evidence has shown that vaginal spermicides do not protect against certain STIs (e.g., chlamydia, cervical gonorrhea) and that frequent use of spermicides containing nonoxynol-9 has been associated with genital lesions and may increase HIV transmission (Wilkinson, Ramjee, Tholandi, & Rutherford, 2002). Condoms lubricated with nonoxynol-9 are not recommended (CDC, 2002a).

Women should be counseled to watch out for situations that make it hard to talk about and practice safer sex. These include romantic times when condoms are not available and when alcohol or drugs make it difficult to make wise decisions about safer sex.

**Bacterial Sexually Transmitted Infections**

**Chlamydial infection**

*Chlamydia trachomatis* is the most common and fastest spreading STI in U.S. women (CDC, 2002b). These infections are often silent and highly destructive; their sequelae and complications can be very serious. In women, chlamydial infections are difficult to diagnose; the symptoms, if present, are nonspecific, and the organism is expensive to culture.

Acute salpingitis, or PID, is the most serious complication of chlamydial infections. Past chlamydial infections are associated with an increased risk of ectopic pregnancy and tubal factor infertility. Furthermore, chlamydial infection of the cervix causes inflammation, resulting in microscopic cervical ulcerations that may increase risk of acquiring HIV infection.

Sexually active women younger than 20 years of age are the most likely to become infected with chlamydia. Women older than age 30 have the lowest rate of infection. Risky behaviors, including multiple partners and not using barrier methods of birth control, increase a woman’s risk of chlamydial infection.

**Screening and diagnosis.** In addition to obtaining information regarding the presence of risk factors (e.g., women younger than 20 years old, women who do not use barrier contraceptives, women with new or multiple partners), the nurse should inquire about the presence of any symptoms (CDC, 2002a). Although infection is usually asymptomatic, some women may experience spotting or postcoital bleeding, mucoid or purulent cervical discharge, or dysuria. Bleeding results from inflammation and erosion of the cervical columnar epithelium.

Diagnosis of chlamydia is by culture (expensive and labor intensive), DNA probe (less expensive but less sensitive), enzyme immunosassay (less expensive but less sensitive), and nucleic acid amplification (expensive but has sensitivity of about 90%) (Rawlins, 2001). Special culture media and proper handling of specimens are important, so nurses should always know what is required in their individual practice sites.

**Management.** The CDC recommendations for treatment of chlamydial infections are doxycycline (100 mg orally twice a day for 7 days) or azithromycin (1 g orally in a single dose) (CDC, 2002a). Azithromycin is often prescribed when compliance may be a problem, because only one dose is needed; however, expense is a concern with this medication. Because chlamydia is often asymptomatic, the woman should be cautioned to take all medication prescribed. All exposed sexual partners should be treated. Woman treated with doxycycline or azithromycin do not need to be retested unless symptoms continue. Women treated with erythromycin may be retested 3 weeks after completing the medication, although the validity of this practice has not been established (CDC, 2002a).

**Gonorrhea**

Gonorrhea is caused by the aerobic, gram-negative diplococci *Neisseria gonorrhoeae*. Gonorrhea is almost exclusively transmitted by the contact of sexual activity. The principal means of communication is genital-to-genital contact; however, it is also spread by oral-to-genital and anal-to-genital contact. Gonorrhea also can be transmitted to the newborn in the form of ophthalmia neonatorum during birth by direct contact with gonococcal organisms in the cervix. Age is probably the most important risk factor associated with gonorrhea. The majority of those contracting gonorrhea are younger than age 20 years. Other risk factors include early onset of sexual activity and multiple sexual partners.

Women are often asymptomatic, but when symptomatic they may have a greenish-yellow purulent endocervical discharge or may experience menstrual irregularities. Women may complain of pain, chronic or acute severe pelvic or lower abdominal pain; or longer, more painful menses. Gonococcal rectal infection may occur in women after anal intercourse. Individuals with rectal gonorrhea may be completely asymptomatic or, conversely, may experience severe symptoms with profuse purulent anal discharge, rectal pain, and blood in the stool. Rectal itching, fullness, pressure, and pain also are common symptoms, as is diarrhea. A diffuse vaginitis with vulvitis is the most common form of gonococcal infection in prepubertal girls. There may be few signs
of infection, or vaginal discharge, dysuria, and swollen, redden-
dened labia may be present.

Screening and diagnosis. Gonococcal infection cannot be diagnosed reliably by clinical signs and symptoms alone. Cultures are considered the gold standard for diagnosis of gonorrhea. Cultures should be obtained from the endocervix, rectum, and, when indicated, the pharynx. Thayer-Martin cultures are recommended to diagnose gonorrhea in women. Because STIs tend to coexist, any woman suspected of having gonorrhea should have a chlamydial culture and serologic test for syphilis if one has not been done in the past 2 months.

Management. Management of gonorrhea is straightforward, and the cure is usually rapid with appropriate antibacterial therapy. Single-dose efficacy is a major consideration in selecting an antibiotic regimen for women with gonorrhea. Another important consideration is the high percentage (49%) of women with coexisting chlamydial infections. The recommended treatment is one dose of the following medications: ceftriaxone 125 mg intramuscularly, cefixime 400 mg orally, ciprofloxacin 500 mg orally, ofloxacin 400 mg orally, or levofloxacin 250 mg orally (CDC, 2002a). The CDC also suggests concomitant treatment for chlamydia because coinfection is common.

Gonorrhea is a highly communicable disease. Recent (past 30 days) sexual partners should be examined, cultured, and treated with appropriate regimens. Most treatment failures result from reinfection; the woman needs to be informed of this, as well as of the consequences of reinfection in terms of chronicity, complications, and potential infertility. Women are counseled to have their partners use condoms. All patients with gonorrhea should be offered confidential counseling and testing for HIV infection.

Syphilis

Syphilis is caused by Treponema pallidum, a motile spirochete. Transmission is thought to be by entry in the subcutaneous tissue through microscopic abrasions that can occur during sexual intercourse. The disease can also be transmitted through kissing, biting, or oral-genital sex. Transplacental transmission may occur at any time during pregnancy; the degree of risk is related to the quantity of spirochetes in the maternal bloodstream.

Rates of syphilis have declined among women and African-Americans, although rates continue to be high in southern states (CDC, 2003).

Syphilis is a complex disease that can lead to serious systemic disease and even death if untreated. Infection manifests itself in distinct stages with different symptoms and clinical manifestations. Primary syphilis is characterized by a primary lesion, the chancre, that appears 5 to 90 days after infection; this lesion often begins as a painless papule at the site of inoculation and then erodes to form a nontender, shallow, indurated, clean ulcer several millimeters to centimeters in size (Fig. 5-2, A). Secondary syphilis, occurring 6 weeks to 6 months after the appearance of the chancre, is characterized by a widespread, symmetric maculopapular rash on the palms and soles and generalized lymphadenopathy. The infected individual also may experience fever, headache, and malaise. Condyloma lata (wartlike infectious lesions) may develop on the vulva, perineum, or anus (Fig. 5-2, B). If the woman is untreated, she enters a latent phase that is asymptomatic for most individuals. If left untreated, approximately one third of patients will develop tertiary syphilis. Neurologic and cardiovascular, musculoskeletal, or multorgan system complications can develop in this third stage.
Screening and diagnosis. Diagnosis is dependent on microscopic examination of primary and secondary lesion tissue and serology during latency and late infection. Any test for antibodies may not be reactive in the presence of active infection because it takes time for the body's immune system to develop antibodies to any antigens. Two types of serologic tests are used: nontreponemal and treponemal. Nontreponemal antibody tests such as the Venereal Disease Research Laboratory (VDRL) or rapid plasma reagin (RPR) are used as screening tests. False-positive results are not unusual, particularly when conditions such as acute infection, autoimmune disorders, malignancy, pregnancy, and drug addiction exist and after immunization or vaccination. The treponemal tests, fluorescent treponemal antibody absorbed (FTA-ABS) and microhemagglutination assays for antibody to T. pallidum (MHA-TP), are used to confirm positive results. Test results in patients with early primary or incubating syphilis may be negative. Seroconversion usually takes place 6 to 8 weeks after exposure, so testing should be repeated in 1 to 2 months when a suspicious genital lesion exists. Positive nontreponemal tests usually become nonreactive after treatment, but most patients with positive treponemal antibody test results will remain positive for life, regardless of treatment or disease activity (CDC, 2002a). Tests for chlamydia and gonorrhea should be done, and HIV testing offered.

Management. Penicillin is the preferred medication for treating patients with all stages of syphilis (CDC, 2002a). One intramuscular injection of penicillin G benzathine (2.4 million units) is the recommended dose. Patients treated for syphilis may experience a Jarisch-Herxheimer reaction after antibiotic therapy, an acute febrile reaction often accompanied by headache, myalgias, and arthralgias that develop within the first 24 hours of treatment. This reaction may be treated symptomatically with analgesics and antipyretics. Monthly follow-up is mandatory so that retreatment may be given if needed. The nurse should emphasize the necessity of long-term serologic testing even in the absence of symptoms. The patient should be advised to practice sexual abstinence until treatment is completed, all evidence of primary and secondary syphilis is gone, and serologic evidence of a cure is demonstrated. Women should be told to notify all partners who may have been exposed. They should be informed that the disease is reportable. Preventive measures should be discussed.

Pelvic inflammatory disease

Pelvic inflammatory disease (PID) is an infectious process that most commonly involves the uterine tubes (salpingitis), uterus (endometritis), and, more rarely, the ovaries and peritoneal surfaces. Multiple organisms have been found to cause PID, and most cases are associated with more than one organism. C. trachomatis is estimated to cause one half of all cases of PID. In addition to gonorrhea and chlamydia, a wide variety of anaerobic and aerobic bacteria are recognized to cause PID. Because PID may be caused by a wide variety of infectious agents and encompasses a wide variety of pathologic processes, the infection can be acute, subacute, or chronic and has a wide range of symptoms.

Most PID results from ascending spread of microorganisms from the vagina and endocervix to the upper genital tract. This spread most frequently happens at the end of or just after menses following reception of an infectious agent. PID also may develop after an elective abortion, pelvic surgery, or childbirth.

Risk factors for acquiring PID are those associated with the risk of contracting an STI—a history of PID or STIs, intercourse with a partner who has untreated urethritis, recent IUD insertion, and nulliparity.

Women who have had PID are at increased risk for ectopic pregnancy, infertility, and chronic pelvic pain. Other problems associated with PID include dyspareunia (painful intercourse), prostatitis (pus in the prostate), tubo-ovarian abscess, and pelvic adhesions.

The symptoms of PID vary, depending on whether the infection is acute, subacute, or chronic; however, pain is common to all types of infection. It may be dull, cramping, and intermittent (subacute) or severe, persistent, and incapacitating (acute). Women may also report one or more of the following: fever, chills, nausea and vomiting, increased vaginal discharge, symptoms of a urinary tract infection, and irregular bleeding. Abdominal pain is usually present; upper abdominal pain may result from liver capsule inflammation (Fitz-Hugh-Curtis syndrome) (Stenchever et al., 2001).

Screening and diagnosis. PID is difficult to diagnose because of the accompanying wide variety of symptoms. The CDC (2002a) recommends treatment for PID in all sexually active young women and others at risk for STIs, if the following criteria are present and no other cause(s) of the illness can be found: lower abdominal tenderness, bilateral adnexal tenderness, and cervical motion tenderness. Other criteria for diagnosing PID include oral temperature 38.5°C or above, abnormal cervical or vaginal discharge, elevated erythrocyte sedimentation rate, elevated C-reactive protein, and laboratory documentation of cervical infection with N. gonorrhoeae or C. trachomatis.

Management. Perhaps the most important nursing intervention is prevention. Primary prevention includes education in preventing the acquisition of STIs, and secondary prevention involves preventing a lower genital tract infection from ascending to the upper genital tract. Instructing women in self-protective behaviors such as practicing safer sex and using barrier methods is critical. Also important is the detection of asymptomatic gonorrheal and chlamydial infections through routine screening of women with risky behaviors or specific risk factors such as age.
Although treatment regimens vary with the infecting organism, a broad-spectrum antibiotic generally is used (CDC, 2002b). Treatment may be oral (ceftaxan plus metronidazole) or parenteral (e.g., cefoxitin plus doxycycline [oral]), and regimens can be administered in inpatient or outpatient settings. The woman with acute PID should be on bed rest in a semi-Fowler’s position. Comfort measures include analgesics for pain and all other nursing measures applicable to a patient confined to bed. As few pelvic examinations as possible should be done during the acute phase of the disease. During the recovery phase, the woman should restrict her activity and make every effort to get adequate rest and a nutritionally sound diet. Follow-up laboratory work after treatment should include endocervical cultures for a test of cure.

Health education is central to effective management of PID. Nurses should explain to women the nature of their disease and should encourage them to comply with all therapy and prevention recommendations, emphasizing the necessity of taking all medication, even if symptoms disappear. Women should be counseled to refrain from sexual intercourse until their treatment is completed. Contraceptive counseling should be provided. The nurse can suggest the woman select barrier methods such as condoms or a diaphragm. A woman with a history of PID should not choose an IUD as her contraceptive method (Stenchever et al., 2001).

The potential or actual loss of reproductive capabilities can be devastating and can adversely affect a woman’s self-concept. Because PID is so closely tied to sexuality, body image, and self-concept, the woman diagnosed with it will need supportive care. Referral to a support group or for counseling may be appropriate.

**Viral Sexually Transmitted Infections**

**Human papillomavirus**

Human papillomavirus (HPV) infections, also known as *condylomata acuminata*, or genital warts, is the most common viral STI seen in ambulatory health care settings. An estimated 20 million Americans are infected with HPV, and about 6.2 million new infections occur every year (CDC, 2005). HPV, a double-stranded DNA virus, has more than 30 serotypes that can be sexually transmitted, five of which are known to cause genital wart formation and eight of which are currently thought to have oncogenic potential (CDC, 2002a). HPV is the primary cause of cervical neoplasia (ACS, 2005). Genital warts in women are most commonly seen in the posterior part of the introitus (Fig. 5-3). However, lesions also are found on the buttocks, vulva, vagina, anus, and cervix. Typically warts are small, 2 to 3 mm in diameter and 10 to 15 mm in height, soft, papillary swellings occurring singularly or in clusters on the genital and anal-rectal region. Infections of long duration may appear as a cauliflower-like mass. In moist areas such as the vaginal introitus, the lesions may appear to have multiple, fine, fingerlike projections.

Vaginal lesions are often multiple. Flat-topped papules, 1 to 4 mm in diameter, are seen most often on the cervix. Often, these lesions are visualized only under magnification. Warts are usually flesh colored or slightly darker on Caucasian women, black on African-American women, and brownish on Asian women. Condylomata acuminata are often painless but may also be uncomfortable, particularly when very large. They can become inflamed and ulcerated.

**Screening and diagnosis.** Viral screening and typing for HPV is available but not standard practice. History, evaluation of signs and symptoms, Faganicolaou (Pap) test, and physical examination are used in making a diagnosis. The HPV-DNA test can be used in women over the age of 30 in combination with the Pap test to test for types of HPV that are likely to cause cancer or in women with abnormal Pap test results (ACS, 2005) (see Chapter 4). The only definitive diagnostic test for presence of HPV is histologic evaluation of a biopsy specimen.

**Management.** Untreated warts may resolve on their own in young women, as their immune system may be strong enough to fight the HPV infection. If treatment is needed, a topical application of podophyll 0.5% solution or gel may be applied to the warts (CDC, 2002a). Cryotherapy, electrocautery, and laser therapy may also be used. No one treatment is best, and no therapy has been shown to eradicate HPV. The goal of treatment is removal of warts and relief of signs and symptoms. The woman often must make multiple office visits; frequently, many different treatments are tried.

Women who are experiencing discomfort associated with genital warts may find that bathing with an oatmeal solution and drying the area with a cool hair dryer will provide some relief. Keeping the area clean and dry will also decrease growth of the warts. Cotton underwear and loose-fitting clothes that decrease friction and irritation also may decrease discomfort. Women should be advised to maintain a healthy lifestyle to aid the immune system; women can be counseled regarding diet, rest, stress reduction, and exercise.
Patient counseling is essential. Women must understand the virus, how it is transmitted, that no immunity is conferred with infection, and that reinfection is likely with repeated contact. Women need to know that their partners should be checked, even if they are asymptomatic. All sexually active women with multiple partners or a history of HPV should be encouraged to use latex condoms and a vaginal spermicide for intercourse to decrease acquisition or transmission of the infection. Semianual or annual health examinations are recommended to assess disease recurrence and screening for cervical cancer. At least annual Pap tests should be done on women who have been treated for HPV infections (CDC, 2002a).

Genital herpes simplex virus

Unknown until the middle of the twentieth century, genital herpes simplex virus (HSV) is now one of the most common STIs in the United States, especially in women. HSV is a painful vesicular eruption of the skin and mucosa of the genitals caused by two different antigen subtypes of HSV: herpes simplex virus 1 (HSV-1) and herpes simplex virus 2 (HSV-2). HSV-2 is usually transmitted sexually, and HSV-1 nonsexually. Although HSV-1 is more commonly associated with gingivostomatitis and oral labial ulcers (fever blisters) and HSV-2 with genital lesions, neither type is exclusively associated with the respective sites.

It is estimated that at least one in every five people in the United States is infected with herpes (CDC, 2002a). Women between ages 15 and 34 are most likely to become infected. Recurrent HSV infections are common. Prevalence is higher in women with multiple sex partners.

An initial herpetic infection characteristically has both systemic and local symptoms and lasts about 3 weeks. Women generally have a more severe clinical course than do men. Often, the first symptoms after incubation are genital tingling and neuralgic pain. Systemic symptoms appear and persist during primary and recurrent infections, and a heavy, watery to purulent vaginal discharge is common. Cervicitis also is common with initial infections, and a heavy, watery to purulent vaginal discharge is common. Extragential lesions may be present because of autonoculation. Urinary retention and dysuria may occur secondary to autonomic involvement of the sacral nerve root.

Women experiencing recurrent episodes of HSV infections often will have only local symptoms, which are usually less severe than those associated with the initial infection. Systemic symptoms are usually absent, although the characteristic prodromal genital tingling is common. Recurrent lesions are unilateral, are less severe, and usually last 7 to 10 days without prolonged viral shedding. Lesions begin as vesicles and progress rapidly to ulcers. Very few women with recurrent disease have cervicitis.

Screening and diagnosis. Although a diagnosis of herpes infection may be suspected from the history and physical examination, it is confirmed by viral tissue cultures.

Management. Genital herpes is a chronic and recurring disease for which there is no known cure. Oral medications used for treating HSV infections include acyclovir, famciclovir, and valacyclovir. Intravenous acyclovir may be used for women with severe disease (CDC, 2002a; Hatcher et al., 2004). Management is directed toward specific treatment during primary and recurrent infections, prevention, self-help measures, and psychologic support.

Cleaning lesions twice a day with saline will help prevent secondary infection. Bacterial infection must be treated with appropriate antibiotics. Measures that may increase comfort for women when lesions are active include warm sitz baths with baking soda; keeping lesions warm and dry by blowing the area dry using a hair dryer set on cool or patting dry with a soft towel; wearing cotton underwear and loose clothing; using drying aids such as hydrogen peroxide, Burrow’s solution, or oatmeal baths; applying cool, wet black tea bags to lesions; and applying compresses with an infusion of cloves or peppermint oil and clove oil to lesions.

Analgesics such as aspirin or ibuprofen may be used to relieve pain and systemic symptoms associated with initial infections. Because the mucous membranes affected by herpes are very sensitive, any topical agents should be used with caution. Nonantiviral ointments, especially those containing cortisone, should be avoided. A thin layer of lidocaine ointment or an antiseptic spray may be applied to decrease discomfort, especially if walking is difficult.

Counseling and education are critical components of the nursing care of women with herpes infections. Information...
regarding the etiology, signs and symptoms, transmission, and treatment should be provided. Women should be helped to understand when viral shedding and therefore transmission to a partner is most likely, and that they should refrain from sexual contact from the onset of prodrome until complete healing of lesions. Condoms may not prevent transmission, particularly male-to-female transmission; however, this does not mean that the partners should avoid all intimacy. Women can be encouraged to maintain close contact with their partners while avoiding contact with lesions. Women should be taught how to look for herpetic lesions using a mirror and good light source to aid vision and a wet cloth or finger covered with a finger cot to rub lightly over the labia. The nurse should ensure that women understand that when lesions are active, sharing intimate articles (e.g., washcloth, wet towel) that come into contact with the lesions should be avoided. Plain soap and water are all that is needed to clean hands that have come in contact with herpetic lesions.

Stress, menstruation, trauma, febrile illnesses, chronic illness, and ultraviolet light have all been found to trigger recurrences of genital herpes (Frasier, 2002). Women may wish to keep a diary to identify which stressors seem to be associated with recurrent herpes attacks so that they can then avoid those stressors when possible. Referral for stress reduction therapy, yoga, or meditation classes may be done when indicated. The role of exercise in reducing stress can be discussed. Avoiding excessive heat and sun and hot baths and using a lubricant during sexual intercourse to reduce friction also may be helpful.

The emotional effect of contracting an incurable STI such as herpes is considerable. At diagnosis many emotions may surface—helplessness, anger, denial, guilt, anxiety, shame, or inadequacy. Women need the opportunity to discuss their feelings and help in learning to live with the disease. Herpes can affect a woman’s sexuality, her sexual practices, and her current and future relationships. She may need help in raising the issue with her partner or with future partners.

**Hepatitis**

Hepatitis A, B, and C viruses are discussed; hepatitis D and E viruses, most common among users of intravenous drugs and recipients of multiple blood transfusions, are not included in this discussion.

**Hepatitis A.** Hepatitis A virus (HAV) infection is acquired primarily through a fecal-oral route by ingestion of contaminated food, particularly milk, shellfish, or polluted water, or person-to-person contact. HAV infection is characterized by flu-like symptoms with malaise, fatigue, anorexia, nausea, pruritus, fever, and upper right quadrant pain. Serologic testing to detect the immunoglobulin M (IgM) antibody is done to confirm acute infections. Because HAV infection is self-limited and does not result in chronic infection or chronic liver disease, treatment is usually supportive. Women who become dehydrated from nausea and vomiting or who have fulminating hepatitis A may need to be hospitalized. Medications that might cause liver damage or that are metabolized in the liver should be used with caution. No specific diet or activity restrictions are necessary.

Hepatitis A vaccine and immune globulin (IG) for intramuscular administration are effective in preventing most hepatitis A infections (CDC, 2002a).

**Hepatitis B.** Hepatitis B virus (HBV), a common STI, is much more contagious than HIV. It is caused by a large DNA virus and is associated with three antigens and their antibodies: hepatitis B surface antigen (HBsAg), HBV antigen (HBeAg), HBV core antigen (HBcAg), antibody to HBsAg (anti-HBs), antibody to HBeAg (anti-HBe), and antibody to HBcAg (anti-HBc). Screening for active or chronic disease or disease immunity is based on testing for these antigens and their antibodies.

Populations at risk include women of Asian, Pacific Island (Polynesian, Micronesian, Melanesian), or Alaskan Eskimo descent and women born in Haiti or sub-Saharan Africa. Women with a history of acute or chronic liver disease, who work or receive treatment in a dialysis unit, or who have household or sexual contact with a hemodialysis patient are at greater risk. Women who work or live in institutions for the mentally retarded are considered to be at risk, as are women with a history of multiple blood transfusions.

Health care workers and public safety workers exposed to blood in the workplace are at risk. Behaviors such as multiple sexual partners and a history of intravenous drug use increase the risk of contracting HBV infections.

HBsAg has been found in blood, saliva, sweat, tears, vaginal secretions, and semen. Drug abusers who share needles are at risk, as are health care workers who are exposed to blood and needles. Perinatal transmission most often occurs in mothers who have acute hepatitis infection late in the third trimester or during the intrapartum or postpartum periods from exposure to HBsAg-positive vaginal secretions, blood, amniotic fluid, saliva, and breast milk. HBV has also been transmitted by artificial insemination. Although HBV can be transmitted via blood transfusion, the incidence of such infections has decreased significantly since testing of blood for HBsAg became routine.

Hepatitis B (HB) is a disease of the liver and is often a silent infection. In the adult, the course of the infection can be fulminating and the outcome fatal. Early symptoms include skin rashes, urticaria, arthralgias, arthritis, lassitude, anorexia, nausea, vomiting, headache, fever, and mild abdominal pain. Later the patient may have clay-colored stools, dark urine, increased abdominal pain, and jaundice. Between 5% and 10% of individuals with HB have persistence of HBsAg and become chronic hepatitis B carriers.

**Screening and diagnosis.** All women at high risk for contracting hepatitis B should be screened on a regular basis. The HBsAg screening test is usually done, as a rise in HBsAg occurs at the onset of clinical symptoms and usually indicates an active infection. If HBsAg persists in the blood, the woman is identified as a carrier. If the HBsAg test
Management. There is no specific treatment for hepatitis B. Recovery is usually spontaneous in 3 to 16 weeks. Women should be advised to increase bed rest; eat a high-protein, low-fat diet; and increase their fluid intake. They should avoid drugs and alcohol and medications metabolized in the liver. Women with a definite exposure to hepatitis B should be given hepatitis B immune globulin (HBIG) and begin the hepatitis B vaccine series within 14 days of the most recent contact to prevent infection (CDC, 2002a). Hepatitis B vaccination is the most effective means of preventing HBV infections. Vaccination is also recommended for all nonimmune women who have had multiple sex partners within the past 6 months, intravenous drug users, residents of correctional or long-term care facilities, persons seeking care for an STI, sex workers, women whose partners are intravenous drug users or bisexual, and women who work in high-risk occupations. The vaccine is given in a series of three (some authorities recommend four) doses over a 6-month period, with the first two doses given at least 1 month apart and the first and third doses at least 4 months apart (CDC, 2002b). The vaccine may be given in the deltoid muscle or gluteal muscle in adults.

Patient education includes explaining the meaning of hepatitis B infection, including transmission, state of infectivity, and sequelae. The nurse should also explain the need for immunoprophylaxis for household members and sexual contacts. To decrease transmission of the virus, women with hepatitis B or who test positive for HBV should be advised to maintain a high level of personal hygiene: wash hands after using the toilet; carefully dispose of tampons, pads, and Band-Aids in plastic bags; do not share razor blades, toothbrushes, needles, and manicure implements; have male partner use a condom if unvaccinated and without hepatitis B; avoid sharing saliva through kissing, or sharing of silverware or dishes; and wipe up blood spills immediately with soap and water. They should inform all health care providers of their carrier state.

Hepatitis C. Hepatitis C virus (HCV) infection has become an important health problem as increasing numbers of persons acquire the disease. Hepatitis C is responsible for nearly 50% of the cases of chronic viral hepatitis. Risk factors include having STIs such as hepatitis B and HIV, multiple sexual partners, history of blood transmissions, and history of intravenous drug use. HCV is readily transmitted through exposure to blood and much less efficiently via semen, saliva, or urine. Most patients with hepatitis C are asymptomatic or have general flu-like symptoms similar to those of hepatitis A. HCV infection is confirmed by the presence of anti-C antibodies during laboratory testing. Interferon-alpha alone or with ribavirin for 6 to 12 months is the main therapy for HCV-related liver disease, although effectiveness of this treatment varies. Currently there is no vaccine for hepatitis C.

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Human immunodeficiency virus

About 40,000 new HIV infections occur in the United States each year (CDC, 2004). An estimated 30% of these new infections occur in women. African-American women are estimated to have 64% of these infections, whereas Hispanic and Caucasian women are estimated to have 18% each (CDC, 2004). Transmission of HIV, a retrovirus, occurs primarily through exchange of body fluids (semen, blood, vaginal secretions). Severe depression of the cellular immune system associated with HIV infection characterizes acquired immunodeficiency syndrome (AIDS). Although behaviors that place women at risk have been well documented, all women should be assessed for the possibility of HIV exposure. The most commonly reported opportunistic diseases are Pneumocystis carinii pneumonia (PCP), Candida esophagitis, and wasting syndrome. Other viral infections such as HIV and cytomegalovirus infections seem to be more prevalent in women than men (Williams, 2003). PID may be more severe in HIV-infected women, and rates of HPV and cervical dysplasia may be higher. The clinical course of HPV infection in women with HIV infection is accelerated, and recurrence is more frequent.

Once HIV enters the body, seroconversion to HIV positivity usually occurs within 6 to 12 weeks. Although HIV seroconversion may be totally asymptomatic, it usually is accompanied by a viremic, influenza-like response. Symptoms include fever, headache, night sweats, malaise, generalized lymphadenopathy, myalgias, nausea, diarrhea, weight loss, sore throat, and rash. Laboratory studies may reveal leukopenia, thrombocytopenia, anemia, and an elevated erythrocyte sedimentation rate. HIV has a strong affinity for surface marker proteins on T lymphocytes. This affinity leads to significant T-cell destruction. Both clinical and epidemiologic studies have shown that declining CD4 levels are strongly associated with increased incidence of AIDS-related diseases and death in many different groups of HIV-infected persons.

HIV testing and counseling. Screening, teaching, and counseling regarding HIV risk factors, indications for being tested, and testing are major roles for nurses caring, and counseling regarding HIV risk factors, indications for being tested, and testing are major roles for nurses caring for women today. A number of behaviors place women at risk for HIV infection, including intravenous drug use, high-risk sex partners, multiple sex partners, and a previous history of multiple STIs. HIV infection is usually diagnosed by using HIV-1 and HIV-2 antibody tests. Antibody testing is first done with a sensitive screening test such as the enzyme immunoassay (EIA). Reactive screening tests must be confirmed by an additional test, such as the Western blot or an immunofluorescence assay. If a positive antibody test is confirmed by a supplemental test, it means that a woman is infected with HIV and is capable of infecting others. HIV antibodies are detectable in at least 95% of patients within 3 months after infection. Although a negative antibody test usually indicates that a person is not infected, antibody tests cannot exclude recent infection. Because HIV antibody
cresses the placenta, definite diagnosis of HIV in children younger than 18 months is based on laboratory evidence of HIV in blood or tissues by culture, nucleic acid, or antigen detection (CDC, 2002a).

The FDA has approved two methods of rapid testing for HIV. OraQuick Rapid HIV Antibody tests can use a blood sample obtained by fingerstick or venipuncture or an oral fluid sample to provide test results within 20 minutes with an accuracy rate over 99%. If the results are reactive, further testing is done (Centers for Disease Control and Prevention, Divisions of HIV/AIDS Prevention, 2004; FDA, 2004). Quicker results mean that patients don’t have to make extra visits for follow-up standard tests, and the oral test provides an option for patients who do not want to have a blood test.

The CDC (2002a) guidelines recommend offering HIV testing to all women whose behavior places them at risk for HIV infection. On entry into the health care system a woman can be handed written information about the risk factors for the AIDS virus and asked to inform the nurse if she believes she is at risk. She should be told that she does not have to say why she may be at risk, only that she thinks she might be.

Counseling before and after HIV testing is standard nursing practice today. It is a nursing responsibility to assess a woman’s understanding of the information such a test would provide and to be sure the woman thoroughly understands the emotional, legal, and medical implications of a positive or negative test result before she is ready to take an HIV test.

LEGAL Tip: HIV Testing
- If HIV test results are placed in the patient’s chart—the appropriate place for all health information—they are available to all who have access to the chart. The woman must be informed of this before testing. Informed consent must be obtained before an HIV test is performed. In some states written consent is mandated.
- Counseling associated with HIV testing has two components: pretest and posttest counseling. During pretest counseling, nurses conduct a personalized risk assessment, explain the meaning of positive and negative test results, obtain informed consent for HIV testing, and help women develop a realistic plan for reducing risk and preventing infection. Posttest counseling includes informing the patient of the test results, reviewing the meaning of the results, and reinforcing prevention messages. All pretest and posttest counseling should be documented.

Unless rapid testing is done, there is generally a 1- to 3-week waiting period after testing for HIV, which can be an anxious time for the woman. It is helpful if the nurse informs her that this time period between blood drawing and test results is routine. Test results, whatever they are, always must be communicated in person and women informed in advance that such is the procedure. Whenever possible the person who provided the pretest counseling should also tell the woman her test results. Women’s reactions to a negative test should be explored with the question “How do you feel?” HIV-negative result counseling sessions are another opportunity to provide education. Emphasis can be placed on ways in which a woman can remain HIV free and encouraged to stay negative. She should be reminded that if she has been exposed to HIV in the past 6 months she should be retested, and that if she continues high risk behaviors she should have ongoing testing.

When providing posttest counseling to an HIV-positive woman, privacy with no interruptions is essential. The nurse should make sure that the woman understands what a positive test means and review the reliability of the test results. Safer sex guidelines must be reemphasized. Referral for appropriate medical evaluation and follow-up should be made, and the need or desire for psychosocial or psychiatric referrals should be assessed. The importance of early medical evaluation so that a baseline assessment can be made and prophylactic medication begun should be stressed.

**Management.** During the initial contact with an HIV-infected woman, the nurse should establish what the woman knows about HIV infection. The nurse should ensure that the woman is being cared for by a medical practitioner or at a facility with expertise in caring for persons with HIV infections, including AIDS. Psychologic referral also may be indicated. Resources such as counseling for financial assistance, legal advocacy, suicide prevention, and death and dying may be appropriate. All women who are drug users should be referred to a substance abuse program. A major focus of counseling is prevention of transmission of HIV to partners.

Nurses counseling seropositive women wishing contraceptive information may recommend oral contraceptives and latex condoms or tubal sterilization or vasectomy and latex condoms. The IUD is not an ideal choice for the HIV-infected woman because of increased risk of infection. Insertion in a woman who is immunocompromised should be avoided (World Health Organization, 2000). Female condoms or abstinence can be offered to women whose partners refuse to use condoms. No cure is available for HIV infections at this time. Rare and unusual diseases are characteristic of HIV infections. Opportunistic infections and concurrent diseases should be managed vigorously with treatment specific to the infection or disease. Routine gynecologic care for HIV-positive women should include a pelvic examination every 6 months. Careful Pap screening is essential because of the greatly increased incidence of abnormal findings on examination (Williams, 2003). In addition, HIV-positive women should be screened for syphilis, gonorrhea, chlamydia, and other vaginal infections and treated if infections are present. Discussion of the medical care of HIV-positive women or women with AIDS is beyond the scope of this chapter. HIV in pregnancy is discussed in Chapter 22 (see Resources at end of chapter for current information and recommendations).
Vaginal Infections

Vaginal discharge and itching of the vulva and vagina are among the most common reasons a woman seeks help from a health care provider. Indeed, more women complain of vaginal discharge than of any other gynecologic symptom. Vaginal discharge resulting from infection must be distinguished from normal secretions. Normal vaginal secretion or leukorrhea is clear to cloudy in appearance and may turn yellow after drying; the discharge is slightly slimy, is non-irritating, and has a mild inoffensive odor. Normal vaginal secretions are acidic, with a pH range of 4 to 5. The amount of leukorrhea present differs with phases of the menstrual cycle, with greater amounts occurring at ovulation and just before menses. Leukorrhea is also increased during pregnancy. Normal vaginal secretions contain lactobacilli and epithelial cells. Women who have adequate endogenous or exogenous estrogen will have vaginal secretions.

The most common vaginal infections are bacterial vaginosis (BV), candidiasis, and trichomoniasis. Vulvovaginitis, or inflammation of the vulva and vagina, may be caused by vaginal infection; copious amounts of leukorrhea, which can cause maceration of tissues; and chemical irritants, allergens, and foreign bodies, which may produce inflammatory reactions.

Bacterial vaginosis

BV, formerly called nonspecific vaginitis, Haemophilus vaginitis, or Gardnerella, is the most common type of vaginitis today (Schwebke, 2000). BV is associated with preterm labor and birth. The exact etiology of BV is unknown. It is a syndrome in which normal, H₂O₂-producing lactobacilli are replaced with high concentrations of anaerobic bacteria (e.g., Gardnerella, Mobiluncus). With the proliferation of anaerobes, the level of vaginal amines is raised and the normal acidic pH of the vagina is altered. Epithelial cells slough, and numerous bacteria attach to their surfaces (clue cells). When the amines are volatilized, the characteristic odor of BV occurs.

Many women with BV complain of a characteristic “fishy odor.” The odor may be noticed by the woman or her partner after heterosexual intercourse because semen releases the vaginal amines. When present, the BV discharge is usually profuse, thin, and white or gray, or milky, in appearance. Some women also may experience mild irritation or pruritus.

Screening and diagnosis. A careful history may help distinguish BV from other vaginal infections if the woman is symptomatic. Reports of fishy odor and increased thin vaginal discharge are most significant, and a report of increased odor after intercourse is also suggestive of BV. Women with previous occurrence of similar symptoms, diagnosis, and treatment should be queried, because women with BV often have been treated incorrectly because of misdiagnosis.

Microscopic examination of vaginal secretions is always done (Table 5-3). Both normal saline and 10% potassium hydroxide (KOH) smears should be made. The presence of clue cells (vaginal epithelial cells coated with bacteria) on wet saline smear is highly diagnostic because the phenomenon is specific to BV. Vaginal secretions should be tested for pH and amine odor. Nitrazine paper is sensitive enough to detect a pH of 4.5 or greater. The fishy odor of BV will be released when KOH is added to vaginal secretions on the lip of the withdrawn speculum.

Management. Treatment of BV with oral metronidazole (Flagyl) is most effective (CDC, 2002a). Side effects of metronidazole are numerous, including sharp, unpleasant metallic taste in the mouth, furry tongue, central nervous system reactions, and urinary tract disturbances. When oral metronidazole is taken, the woman is advised not to drink alcoholic beverages, or she will experience the severe side effects of abdominal distress, nausea, vomiting, and headache. Gastrointestinal symptoms are common whether alcohol is consumed or not. Treatment of sexual partners is not routinely recommended (CDC, 2002a).

TABLE 5-3

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<tr>
<th>Wet Smear Tests for Vaginal Infections</th>
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<td><strong>INFECTION</strong></td>
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<tr>
<td>Trichomoniasis</td>
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<tr>
<td>Candidiasis</td>
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<td>Bacterial vaginosis</td>
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**Candidiasis**

Vulvovaginal candidiasis, or yeast infection, is the second most common type of vaginal infection in the United States. Although vaginal candidiasis infections are common in healthy women, those seen in women with HIV infection are often more severe and persistent. Genital candidiasis lesions may be painful, coalescing ulcerations necessitating continuous prophylactic therapy. The most common organism is *Candida albicans*; it is estimated that 80% to 95% of the yeast infections in women are caused by this organism. However, in the past 10 years, the incidence of non-*C. albicans* infections has risen steadily. Women with chronic or recurrent infections often are infected with these organisms.

Numerous factors have been identified as predisposing a woman to yeast infections, including antibiotic therapy, particularly broad-spectrum antibiotics such as ampicillin, tetracycline, cephalosporins, and metronidazole; diabetes, especially when uncontrolled; pregnancy; obesity; diets high in refined sugars or artificial sweeteners; use of corticosteroids and exogenous hormones; and immunosuppressed states. Clinical observations and research have suggested that tight-fitting clothing and underwear or pantyhose made of non-absorbent materials create an environment in which vaginal fungus can grow.

The most common symptom of yeast infections is vulvar and possibly vaginal pruritus. The itching may be mild or intense, may interfere with rest and activities, and may occur during or after intercourse. Some women report a feeling of dryness. Others may experience painful urination as the urine flows over the vulva; this usually occurs in women who have excoriation resulting from scratching. Most often the discharge is thick, white, lumpy, and cottage cheese–like. The discharge may be found in patches on the vaginal walls, cervix, and labia. Commonly, the vulva is red and swollen, as are the labial folds, vagina, and cervix. Although there is not a characteristic odor with yeast infections, sometimes a yeasty or musty smell occurs.

**Screening and diagnosis.** In addition to a careful history of the woman’s symptoms, their onset, and their course, the history is a valuable screening tool for identifying predisposing risk factors. Physical examination should include a thorough inspection of the vulva and vagina. A speculum examination is always done. Commonly, saline and KOH wet smear and vaginal pH are obtained (see Table 5-3). Vaginal pH is normal with a yeast infection; if the pH is greater than 4.5 one should suspect trichomoniasis or BV. The characteristic pseudohyphae (bud or branching of a fungus) may be seen on a wet smear done with normal saline; however, others may be confused with other cells and artifacts.

**Management.** A number of antifungal preparations are available for the treatment of *C. albicans* infection. Intravaginal agents include miconazole, clotrimazole, butoconazole, and terconazole; fluconazole is an effective oral agent (CDC, 2002a). Many of these medications (e.g., Monistat, Gyne-Lotrimin) are available OTC. Exogenous lactobacillus (in the form of dairy products or powder, tablet, capsule or suppository supplements) has been suggested for prevention and treatment of vulvovaginal candidiasis, but research is inconclusive and no recommendation for use in practice has been made (Jeavons, 2003). The first time a woman suspects that she may have a yeast infection, she should see a health care provider for confirmation of the diagnosis and treatment recommendation. If she experiences another infection, she may wish to purchase an OTC preparation and self-treat; if she elects to do this, she should always be counseled regarding seeking care for numerous recurrent or chronic yeast infections. If vaginal discharge is extremely thick and copious, vaginal debridement with a cotton swab followed by application of vaginal medication may be useful.

Women who have extensive irritation, swelling, and discomfort of the labia and vulva may find sitz baths helpful in decreasing inflammation and increasing comfort. Adding Aveeno powder to the bath may also increase the woman’s comfort. Not wearing underpants to bed may help decrease symptoms and prevent recurrences. Completing the full course of treatment prescribed is essential to removing the pathogen, and women are instructed to continue medication even during menstruation. They should be counseled not to use tampons during menstruation because the medication will be absorbed by the tampon. If possible, intercourse is avoided during treatment; if this is not feasible, the woman’s partner should use a condom to prevent introduction of more organisms (see Patient Instructions for Self-Care box).

**Trichomoniasis**

*Trichomonas vaginalis* is almost always an STI. It is also a common cause of vaginal infection (up to 25% of all vaginitis) and discharge and therefore is discussed in this section. Trichomoniasis is caused by *T. vaginalis*, an anaerobic, one-celled protozoan with characteristic flagella. Although the incidence of non–*C. albicans* infections has risen steadily. Women with chronic or recurrent infections often are infected with these organisms. **Patient Instructions for Self-Care**

- **Prevention of Genital Tract Infections.**
  - Practice genital hygiene.
  - Choose underwear or hosiery with a cotton crotch.
  - Select cloth car seat covers instead of vinyl.
  - Limit exposure to bath salts or bubble bath.
  - Limit time spent in damp exercise clothes (especially tight jeans).
  - Avoid colored or scented toilet tissue.
  - Do not douche.
  - Decrease dietary sugar.
  - Drink yeast-active milk and eat yogurt (with lactobacilli).
  - If sensitive, discontinue use of feminine hygiene products.
  - Avoid tight-fitting clothing (especially tight jeans).
  - Avoid deodorant sprays.
  - Avoid antiperspirants.
  - Wear underpants during menses.
  - Wear underpants to bed.
  - Wear loose-fitting clothing (especially tight jeans).
  - Use tampons during menses.
  - Use condoms.
  - Void before and after intercourse.
  - Decrease dietary sugar.
  - Drink yeast-active milk and eat yogurt (with lactobacilli).
  - Do not douche.
  - Decrease dietary sugar.
  - Drink yeast-active milk and eat yogurt (with lactobacilli).
  - Do not douche.
  - Decrease dietary sugar.
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  - Decrease dietary sugar.
  - Drink yeast-active milk and eat yogurt (with lactobacilli).
  - Do not douche.
As with HIV, the existence of any risk warrants reasonable precautions. Precautions against airborne disease transmission are available in all health care agencies. Standard Precautions (precautions to use in care of all persons for infection control) and additional precautions for labor and birth settings are listed in Box 5-4.

**PROBLEMS OF THE BREASTS**

**Benign Problems**

**Fibrocystic changes**

Approximately 50% of women experience a breast problem at some point in their adult life. The most common benign breast problem is fibrocystic changes. Fibrocystic changes are found in varying degrees in breasts of healthy women. There is no known etiologic agent responsible for these changes. One theory is that estrogen excess and progesterone deficiency in the luteal phase of the menstrual cycle may cause changes in breast tissue.

Fibrocystic changes are characterized by lumpiness, with or without tenderness in both breasts (Stenchever et al., 2001). Single simple cysts may also occur. Symptoms usually develop about a week before menstruation begins and subside about a week after menstruation ends. Symptoms include dull heavy pain and a sense of fullness and tenderness often in the upper outer quadrants of the breasts. On physical examination there may be excessive nodularity that is described as feeling like a “plate of peas.” Larger cysts may be described as feeling like water-filled balloons. Women in their twenties report the most severe pain. Women in their thirties have premenstrual pain and tenderness; small multiple nodules are usually present. Women in their forties usually do not report severe pain, but cysts will be tender; cysts often regress in size.

Steps in the workup of a breast lump may begin with ultrasonography to determine whether it is fluid filled or solid. Fluid-filled cysts are aspirated, and the woman is followed often in the upper outer quadrants of the breasts. On physical examination there may be excessive nodularity that is described as feeling like a “plate of peas.” Larger cysts may be described as feeling like water-filled balloons. Women in their twenties report the most severe pain. Women in their thirties have premenstrual pain and tenderness; small multiple nodules are usually present. Women in their forties usually do not report severe pain, but cysts will be tender; cysts often regress in size.

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Surgical removal of nodules is done only in rare cases. In the presence of multiple nodules, the surgical approach would involve multiple incisions and tissue manipulation and may not prevent the development of more nodules.
CHAPTER 5 Common Reproductive Concerns

125

in diameter (Stenchever et al., 2001). Occasionally the woman with a fibroadenoma will experience tenderness in the tumor during the menstrual cycle. Fibroadenomas increase in size during pregnancy and decrease in size as the woman ages. The cause of fibroadenomas is unknown. Diagnosis is made by reviewing patient history and physical examination. Mammography, ultrasound, or magnetic resonance imaging may be used to determine the cause of the lesion. FNA may be used to determine underlying pathology. Surgical excision may be necessary if the lump is suspicious or if the symptoms are severe. Periodic observation of masses by professional physical examination or mammography may be all that is necessary for those masses not needing surgical intervention. Women should be instructed to perform monthly breast self-examinations (see Chapter 4).

Nipple discharge

Nipple discharge is a common occurrence that concerns many women. Although most nipple discharge is physiologic, each woman who has this problem must be evaluated carefully, because a small percentage will be found to have a serious endocrine disorder or malignancy.

Another form of breast discharge not related to malignancy is galactorrhea, which manifests as a bilaterally spontaneous, milky, sticky discharge. It is a normal finding in pregnancy. It can also occur as the result of elevated prolactin levels occurring as a result of a thyroid disorder, pituitary tumor, or chest wall surgery or trauma. It is essential to obtain a complete medication history on each woman. Oral contraceptives and neuroleptic drugs are known to precipitate galactorrhea in some women (Leung & Pacaud, 2004; Perese & Perese, 2003).

Diagnostic tests that may be indicated include a prolactin level, a microscopic analysis of the discharge from each breast, a thyroid profile, a pregnancy test, and a mammogram (Leung & Pacaud, 2004).

Mammary duct ectasia is an inflammation of the ducts behind the nipple. It occurs most often in perimenopausal women. It is characterized by a nipple discharge that is thick, sticky, and colored white, brown, green, or purple. Frequently the woman experiences a burning pain, an itching, or a palpable mass behind the nipple. The workup includes a mammogram and aspiration of fluid. Treatment is usually symptomatic; warm compresses applied to the breast may provide relief. If a mass is present or an abscess occurs, treatment may include a local excision of the affected duct(s), provided the woman has no future plans to breastfeed.

Intraductal papilloma

Intraductal papilloma is a rare, benign condition that develops within the terminal nipple ducts. The cause is unknown. It usually occurs in women between ages 30 and 50. The papilloma is usually too small to be palpated, and the characteristic sign is nipple discharge that is serous, serosanguineous, or bloody. After the possibility of malignancy is eliminated, the affected segments of the ducts and breasts are surgically excised (Stenchever et al., 2001). Table 5-4 compares manifestations of benign breast diseases.

Cancer of the Breast

The United States has one of the highest rates of carcinoma in the world. One in eight American women will develop breast cancer in her lifetime (National Cancer Institute [NCI], 2002). There is no clear method for prevention. Prognosis for and survival of the woman are improved with early detection. Therefore the woman must be educated about risk factors, early detection, and screening.

Although the exact cause of breast cancer continues to elude investigators, certain risk factors that increase a

<table>
<thead>
<tr>
<th>TABLE 5-4 Comparison of Common Manifestations of Benign Breast Masses</th>
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<tbody>
<tr>
<td><strong>FIBROCYSTIC CHANGES</strong></td>
</tr>
<tr>
<td>-------------------------</td>
</tr>
<tr>
<td>Multiple lumps</td>
</tr>
<tr>
<td>Nodular</td>
</tr>
<tr>
<td>Palpable</td>
</tr>
<tr>
<td>Movable</td>
</tr>
<tr>
<td>Round, smooth</td>
</tr>
<tr>
<td>Firm or soft</td>
</tr>
<tr>
<td>Tenderness influenced by menstrual cycle</td>
</tr>
<tr>
<td>Bilateral</td>
</tr>
<tr>
<td>May or may not have nipple discharge</td>
</tr>
</tbody>
</table>
More than half of all lumps are discovered in the upper outer quadrant of the breast. The most common presenting symptom is a lump or thickening of the breast. The lump may feel hard and fixed or soft and spongy. It may have well-defined or irregular borders. It may be fixed to the skin, thereby causing dimpling to occur. A nipple discharge that is bloody or clear also may be present.

Early detection and diagnosis reduce risk of mortality because cancer is found when it is smaller, lesions are more localized, and there tends to be a lower percentage of positive nodes. However, cultural factors may influence a woman’s decision to participate in breast cancer screening. Knowledge of these factors and use of culturally sensitive tailored messages and materials that appeal to the unique concerns, beliefs, and reading abilities of target groups of underutilizers may assist the nurse in helping women overcome barriers to seeking care. For example, the ACS (2004) reported that women who were African-American, Hispanic, or Native American were less likely to get mammograms than Caucasian or Asian-American women.

Regular breast self-examination from midadolescence on, a clinical examination by a qualified health care provider, and screening mammography (x-ray examination of the breast) (Fig. 5-5) may aid in the early detection of breast cancers (Table 5-5).

When a suspicious finding on a mammogram is noted or a lump is detected, diagnosis is confirmed by needle aspiration, a core needle biopsy, or surgical excision (Fig. 5-6). Ultrasound may also be used to assess a specific area of abnormality found during a mammogram procedure (ACS, 2004). Patients need specific information regarding advantages and disadvantages of these procedures in making a decision about which is most appropriate for them.

**Risk Factors for Breast Cancer**

- Age
- Previous history of breast cancer
- Family history of breast cancer, especially a mother or sister (particularly significant if premenopausal)
- Previous history of ovarian, endometrial, colon, or thyroid cancer
- Early menarche (before age 12)
- Late menopause (after age 55)
- Nulliparity or first pregnancy after age 30
- Use of estrogen replacement therapy
- Obesity after menopause
- Previous history of benign breast disease with epithelial hyperplasia
- Race (Caucasian women have highest incidence)
- High socioeconomic status
- Sedentary lifestyle

*Risk factors are cumulative—the more risk factors present, the greater the likelihood of breast cancer occurring.*

**Screening and diagnosis**

It is estimated that 90% of all breast lumps are detected by the woman. Of this 90%, only 20% to 25% are malignant. More than half of all lumps are discovered in the upper outer quadrant of the breast. The most common presenting symptom is a lump or thickening of the breast. The lump may feel hard and fixed or soft and spongy. It may have well-defined or irregular borders. It may be fixed to the skin, thereby causing dimpling to occur. A nipple discharge that is bloody or clear also may be present.

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**Ethical Considerations for Genetic Testing**

The ability to test for BRCA-1 and BRCA-2 has generated heated ethical debate within the health care community. Testing is expensive (approximately $2500 for the first person in the family to be tested [National Women’s Health Resource Center, 2000]) and often not covered by insurance. Who should be tested (usually not recommended for women without family history of breast or ovarian cancer) and who should pay for it have not been addressed adequately. What to do when a positive result is discovered is not universally agreed on. Women and their families will most likely have increased anxiety after a positive finding. How often should screening be performed? Should prophylactic mastectomies be recommended? Will there be employment discrimination if this information is in a woman’s medical record? Women requesting testing must be fully informed of the possible risks and benefits of testing before consenting to the procedure. Genetic counseling should include helping the woman determine how to inform other family members (Cummings, 2001; National Women’s Health Resource Center, 2000).
Laboratory diagnosis of breast cancer and possible metastases includes complete blood count, liver enzyme levels, serum calcium, and alkaline phosphatase level. Elevated liver enzyme levels indicate possible liver metastases, and increased serum calcium and alkaline phosphatase levels suggest bone metastases. A HER2/neu test may be done on the biopsied breast tissue. HER2/neu is a growth-promoting hormone and in about 50% of breast cancers excessive amounts of the hormone are present, causing the cancer to be more aggressive in spreading than other types of breast cancer. Treatment can be more effective if HER2/neu testing is done (ACS, 2004).

Other tests to determine the spread of the cancer include chest x-ray examination, bone scan, computed tomography (CT), magnetic resonance imaging (MRI), and positron emission tomography (PET scan). Once the stage or spread of cancer is determined, treatment options can be identified.

Nodal involvement and tumor size are the most significant prognostic criteria for long-term survival. One factor that has been helpful in predicting response to therapy and survival is whether the tumor is estrogen- or progesterone-receptor positive or hormone-receptor (HR) positive. Women with HR-positive tumors tend to respond better to treatment and have higher survival rates (ACS, 2004).

Management

Controversy continues regarding the best treatment of breast cancer. The woman is faced with difficult decisions about the various treatment options. Questions that must be addressed in decision making are listed in Box 5-7. Most health care providers recommend that the malignant mass be removed, as well as the axillary nodes for staging purposes (DiSaia & Creasman, 2002). The treatment can be

<table>
<thead>
<tr>
<th>AGE (YR)</th>
<th>EXAMINATION</th>
<th>FREQUENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-39</td>
<td>Breast self-examination (BSE)</td>
<td>Monthly</td>
</tr>
<tr>
<td>40 and older</td>
<td>Clinical breast examination</td>
<td>Every 3 yr</td>
</tr>
<tr>
<td></td>
<td>BSE</td>
<td>Monthly</td>
</tr>
<tr>
<td></td>
<td>Clinical breast examination</td>
<td>Yearly</td>
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<tr>
<td></td>
<td>Mammography</td>
<td>Yearly</td>
</tr>
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</table>

conservative or more radical. The most frequently recommended surgical approaches for the treatment of breast cancer are lumpectomy and modified radical mastectomy. Breast-conserving surgery, such as a lumpectomy (Fig. 5-7, A) or quadrectomy (Fig 5-7, B) is the removal of the breast tumor and a small amount of surrounding tissue. Sampling of axillary lymph nodes is usually done through a separate incision at the time of these procedures, and the surgery is usually followed by radiation therapy to the remaining breast tissue (Crane-Okada, 2001; DiSaia & Creasman, 2002). These procedures are used for the primary treatment of women with early-stage (I or II) breast cancer. Lumpectomy offers survival equivalent to that with modified radical mastectomy (DiSaia & Creasman, 2002).

A simple mastectomy (Fig. 5-7, C) is the removal of the breast containing the tumor. A modified radical mastectomy is the removal of the breast tissue, skin, and fascia of the pectoralis muscle and dissection of the axillary nodes. A radical mastectomy, although rarely performed, is the removal of the breast and underlying pectoralis muscles and complete axillary node dissection (Fig. 5-7, D). After surgery, follow-up treatment may include radiation, chemotherapy,

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**BOX 5-7**

**Decision-Making Questions to Ask**

1. What kind of breast cancer is it (invasive or non-invasive)?
2. What is the stage of the cancer (i.e., how extensive is the spread)?
3. Did the cancer test positive for hormone (estrogen)? (May be slower growing.)
4. What further tests are recommended?
5. What are the treatment options? (Pros and cons of each, including side effects.)
6. If surgery is recommended, what will the scar look like?
7. If a mastectomy is done, can breast reconstruction be done (at the time of surgery or later)?
8. How long will the patient be in the hospital? What kind of postoperative care will the patient need?
9. How long will treatment last if radiation or chemotherapy is recommended? What effects can the patient expect from these treatments?
10. What community resources are available for support?


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**Fig. 5-7** Surgical alternatives for breast cancer. A, Lumpectomy (tylectomy). B, Quadrectomy (segmental resection). C, Total (simple) mastectomy. D, Radical mastectomy.
Tamoxifen (Nolvadex)

**ACTION**
- Antiestrogenic effects; attaches to hormone receptors on cancer cells and prevents natural hormones from attaching to the receptors.

**INDICATION**
- For treatment of metastatic breast cancer; for treatment of breast cancer in postmenopausal women after breast cancer surgery and radiation therapy; to reduce the incidence of breast cancer in women at high risk.

**DOSAGE**
- 20 to 40 mg orally, daily. Doses greater than 20 mg should be given in divided doses (AM and PM).

**ADVERSE REACTIONS**
- Common side effects include hot flashes, nausea, vomiting, vaginal bleeding or discharge, menstrual irregularities, and rash. Hair loss is an uncommon effect. Serious side effects include deep vein thrombosis, increased risk of endometrial cancer, and stroke.

**NURSING CONSIDERATIONS**
- The medication may be taken on an empty stomach or with food. Missed doses should be taken as soon as possible, but taking two doses at once is not recommended. A barrier or nonhormonal form of contraception is recommended in premenopausal women because tamoxifen may be harmful to the fetus.

or hormonal therapy (ACS, 2004). The decision to include follow-up therapy is based on the stage of disease, age and menopausal status of the woman, the woman’s preference, and her hormonal receptor status. Follow-up treatment is usually used to decrease the risk of recurrence in women who have no evidence of metastasis.

Radiation is usually recommended as follow-up therapy for women who have stage I or II cancer. Hormone therapy with tamoxifen, an estrogen agonist, is recommended for women over the age of 50 for at least 5 years (DiSaia & Creasman, 2002) (see Medication Guide). Chemotherapy is often given to premenopausal women who have positive nodes. Therapy for more advanced tumors usually includes surgery followed by chemotherapy, radiation, or both (Stenchever et al., 2001).

Surgery may be performed in an outpatient surgical setting or as an inpatient procedure, depending on what type of surgery is being done. Nursing care and teaching are

**Patient Instructions for Self-Care**

**Mastectomy**
- Wash hands well before and after touching incision area or drains.
- Empty surgical drains twice a day and as needed, recording the date, time, drain site (if more than one drain is present), and amount of drainage in milliliters in diary you will take to each surgical checkup until your drains are removed. (Before discharge, you may receive a graduated container for emptying drains and measuring drainage.)
- Avoid driving, lifting more than 10 pounds, or reaching above your head until given permission by surgeon.
- Take medications for pain as soon as pain begins.
- Perform arm exercises as directed.
- Call physician if inflammation of incision or swelling of the incision or the arm occurs.
- Avoid tight clothing, tight jewelry, and other causes of decreased circulation in the affected arm.
- Until drains are removed, wear loose-fitting underwear (camisole or half-slip) and clothes, pinning surgical drains inside of clothing. (You will be taught how to do this safely.)
- After drains are removed and surgical sites are healing and still tender, wear a mastectomy bra or camisole with a cotton-filled, muslin temporary prosthesis. Temporary prostheses of this type are often available from Reach to Recovery.
- Avoid deodorants, and shaving of affected chest area, axilla, and arm.
- Perform arm exercises as directed.
- Keep follow-up visits for professional examination, mammography, and testing to detect recurrent breast cancer.
- Expect decreased sensation and tingling at incision sites and in the affected arm for weeks to months after surgery.
- Resume sexual activities as desired.
- sponge bathe until drains are removed.
- Return to the surgeon’s office for incision check, drain inspection, and possible drain removal as directed.
- Contact Reach to Recovery for assistance in obtaining external prosthesis and lingerie when dressings, drains, and staples are removed and wound is healing and non-tender.
- Contact insurance company for information about coverage of prosthesis and wig if needed. Obtain prescriptions for prosthesis and wig to submit with receipts of purchase for these items to the insurance company. If insurance does not pay for these items, contact hospital or agency social worker or local American Cancer Society for assistance.
- Encourage mother, sisters, and daughters (if applicable) to learn and practice monthly breast self-examination and mammography (if appropriate).
- Keep follow-up visits for professional examination, mammography, and testing to detect recurrent breast cancer.
- Expect decreased sensation and tingling at incision sites and in the affected arm for weeks to months after surgery.
- Resume sexual activities as desired.
focused on the perioperative period. Preoperatively, women need to be assessed for psychologic preparation and specific teaching needs related to the procedure to be performed and what to expect after surgery. A visit from a woman who has had a similar experience may be beneficial preoperatively, as well as postoperatively.

Postoperative nursing care focuses on recovery. Women who had surgery in an outpatient setting usually go home within a few hours after surgery. A 24- to 48-hour stay is usual after modified radical mastectomy. Precautions should be taken to avoid taking the blood pressure, giving injections, or taking blood from the arm on the affected side. The woman may have drainage tubes from the incision site that will need to be assessed and drained. Incision care may include dressing changes. If postoperative arm exercises are appropriate, these may be initiated during the early postoperative period. The woman is usually discharged to home after being given self-care instructions. Since teaching time is short, providing printed information gives the woman and her family something to refer to at home (see Patient Instructions for Self-Care box).

Information about reconstruction surgery should be given before surgery, although not all women will be candidates for the procedure or are interested in it. Available options include grafts of muscle and skin from the woman’s back, abdomen, or hip, and saline-filled prostheses (Resnick & Belcher, 2002). Use of silicone gel implants is restricted by the FDA to women in safety studies (Zuckerman, 2002).

Concerns about appearance after breast surgery may affect the woman’s self-concept (Sammarco, 2001). Before surgery the woman and her partner need information about what the woman’s postoperative appearance will be like. Both the woman and her partner need to be able to discuss feelings and concerns about accepting the changes. Nurses can assist the couple to communicate these feelings and concerns. Information about community resources and support groups such as Reach to Recovery may be beneficial (see Resources at end of the chapter).

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**Key Points**

- Menstrual disorders diminish the quality of life for affected women and their families.
- PMS is a disorder that begins in the luteal phase of the menstrual cycle and resolves with the onset of menses.
- PMS is a disorder with both psychologic and physiologic characteristics.
- Endometriosis is characterized by dysmenorrhea, infertility, and, less often, alterations in menstrual cycle bleeding and dyspareunia.
- Safer sex practices are key STI prevention strategies.
- HIV is transmitted through body fluids, primarily blood, semen, and vaginal secretions.
- HPV is the most common viral STI.
- Syphilis has reemerged as a common STI.
- Chlamydia is the most common cause of PID.
- Young sexually active women who do not practice safer sex behaviors and have multiple partners are at greatest risk for STIs and HIV.
- STIs are responsible for substantial morbidity and mortality, personal suffering, and a heavy economic burden in the United States.
- STIs and vaginitis are biologic events for which all individuals have a right to expect objective, compassionate, and effective health care.
- The development of breast neoplasms, whether benign or malignant, can have a significant physical and emotional effect on the woman and her family.
- The risk of U.S. women developing breast cancer is 1 in 8.
- An estimated 90% of all breast lumps are detected by women during monthly breast self-examination (BSE).
- Monthly BSE, yearly clinical breast examinations by a health care provider, and routine screening mammograms are recommended for early detection of breast cancer.
- The primary therapy for most women with stage I or II breast cancer is breast-conserving surgery with axillary lymph node sampling followed by radiation therapy.
- Tamoxifen is a common adjuvant therapy for breast cancers that are estrogen-receptor positive.

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**COMMUNITY ACTIVITY**

Investigate the resources in your community for one of the following situations. Your investigation should include where services are provided, ease of access, cost of services, information (e.g., pamphlets, newspaper, flyers) that advertises the services, appropriateness of information (e.g., age, culture, language). Evaluate whether the resources are adequate, and if not, suggest what is needed.

1. A 34-year-old African-American woman who has found a lump in her breast
2. A teenage girl who is sexually active at risk for STIs
3. A 25-year-old Latino woman (non-English speaking) who needs a Pap test

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*STIs* and *vaginitis* are biologic events for which all individuals have a right to expect objective, compassionate, and effective health care.
Answer Guidelines to Critical Thinking Exercise

Premenstrual Syndrome

1. Yes, there is not sufficient evidence for the nurse to draw conclusions and give advice to Joanna. The nurse needs more information regarding Joanna’s menstrual cycle and when the symptoms occur. Joanna may have PMS or PDD or another cyclic perimenstrual problem. If Joanna’s diagnosis is PMS, there is no agreement on the best management of PMS. However, there are strategies that might be effective for Joanna.

2. a. Most women use self-management interventions before seeking medical management for menstrual pain and discomforts. However, many women lack information they could use to adequately self-manage their symptoms. They may take subtherapeutic doses of effective medications or have misconceptions about their symptoms. Therefore nurses can educate women about potentially relevant treatments. These include over-the-counter NSAIDs, heat therapy, exercise, massage, acupuncture, relaxation therapy, stress management, and nutritional counseling.

b. CPPD is a concept developed by AWHONN (see Collins Sharp et al., 2002). It encompasses the individual concepts of dysmenorrhea, PMS, and PDD as well as symptom clusters occurring during the time period both before and after the menstrual flow begins. The cyclic pain experience is usually coupled with other discomforts such as moodiness and irritability. The combination of pain and related discomforts increases the impact on the woman’s functional status and quality of life. Although research is still needed on effectiveness of interventions for CPPD, AWHONN has developed a clinical guideline for practice that is based on the available research.

c. Quality of life issues for women with perimenstrual pain and discomforts include loss of work or school time because of symptoms, financial costs for seeking relief from symptoms, and increased stress because of strained relationships with family, friends, and co-workers or time demands of work or home. Emotional and life stressors may increase the severity of symptoms. Women need to be assessed for their perceptions of how their quality of life is affected. Nurses can then provide counseling and education about how to manage and change these stressors.

d. Coping enhancement is a strategy that nurses can use to help a patient adapt to perceived stressors that interfere with her ability to meet life and role expectations. Nursing care is directed at providing an accepting atmosphere and empowering the patient to be more aware and sensitive to her own needs. Self-monitoring of symptoms can promote self-awareness and enhance the woman’s coping abilities. For example, monitoring symptoms can prompt women to make changes that reduce the severity of symptoms.

3. The nurse needs to assess for pain and discomfort. AWHONN (Collins Sharp et al., 2002) suggests using four questions: Do you have pelvic pain or cramps during or around the time of your period? Are you able to treat the pain so it doesn’t bother you? Do you have other discomforts during or around the time of your period? Are you able to treat these discomforts so they don’t bother you?

Based on this assessment, symptom management strategies can be planned. Joanna can be educated about pain management, coping enhancement, and self-help strategies (Collins Sharp et al., 2002). For example, she can quit smoking, take NSAIDS, use heat therapy, and/or use herbal remedies.

4. Because there is no agreement on management, many strategies could be suggested (Collins Sharp et al., 2002). Multiple strategies may be more effective than single treatment strategies. Some interventions have a strong research base for practice (e.g., NSAIDs) whereas others have a moderate base (e.g., heat therapy). However, interventions with only moderate or minimal scientific support may still be appropriate, but the science base is still in development. In suggesting management strategies, the nurse should look at the desired patient outcome, the research associated with the intervention, the acceptability of the intervention to Joanna, and the feasibility for implementing the intervention.

5. Yes, there are alternatives as identified in number 4. AWHONN suggests that if the nurse can identify more than four appropriate interventions, she or he should consider the strength of the evidence in making recommendations to women.
References


