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Perimenopause: An Opportunity for Health Promotion

Women throughout the world experience menopause, yet the effects of estrogen deficiency, which are more extensive than the commonly reported symptoms of hot flashes, vaginal atrophy, and osteoporosis, are rarely discussed. Using an empathetic approach can enable nurses to teach women more effectively about the multisystem effects of perimenopause and counsel them to implement and maintain the life-style changes necessary for promoting health during this time of life.

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Empathetic nurses prepared to address the physical and emotional concerns of perimenopause, discuss therapy options, and encourage health promotion often can motivate lasting changes in self-care. This article reviews the anatomic changes associated with aging and menopause, surveys hormone replacement therapy options, briefly examines sexuality and self-esteem issues, and discusses nursing management of the perimenopausal woman.

Definitions

Just a few decades ago, the word *menopause* conjured images of physical disruption and psychologic upheaval for mature women. Until late in the 1980s, health professionals used the term *involutional melancholia* (American Psychiatric Association, 1987) to describe the psychologic stress associated with menopause. Another recent myth, the *superwoman syndrome*, suggested that dynamic women would hardly notice hormone changes (Weissman, 1979). The word *menopause* derives from the Greek word *mene*, which means month. *Pause* refers to the cessation of the monthly cycle. Currently, menopause as a single point in time represents the last menstrual bleed. Perimenopause is the time preceding that moment and includes the year after the permanent cessation of menses. The terminology is often interchanged. The terms *female climacteric* and *change of life* refer to declining fertility in the aging process.

Women in Transition

Women are beginning to reject the image of menopause as a time of emotional imbalance, depression, and the beginning of the end and instead are creating an image of individual growth, vitality, and aging with dignity. This is an important transition because, although the average age of menopause has remained stable at 51 years, longevity has increased significantly. Currently, of all women who live to age 50, 30% will be alive at age 81. This statistic means that women live approximately one-third of their lives after menopause (Badawy, 1985; Droegemueller, Herbst, Mishell, & Stenchever, 1987).

Equipped with an expanded understanding of personal health, women, in general, can live healthier lives. Some examples of health-promoting behaviors that informed women are recognizing and incorporating into their lives are the following:

- Women are accepting the importance of exercise in weight control, cardiovascular health, prevention of osteoporosis, and overall fitness

(Boston Women's Health Book Collective, 1984; Harper, 1990).

- Women are seeing nutrition as a prime consideration and are seeing benefits in a diet low in fat, sodium, and alcohol and rich in dietary fiber, minerals, and vitamins (Boston Women's Health Book Collective, 1984; Harper, 1990).
- Awareness of the consequences of smoking has led to a decrease in or cessation of this habit among the general population (Harper, 1990).
- Women have accepted and begun using stress reduction techniques, such as coping strategies and support groups (Boston Women's Health Book Collective, 1984; Duffy, 1988).
- Women are becoming increasingly involved in medical decision making and are making more informed consumer choices than ever before using the expanded knowledge about therapies and drugs made available by the media, magazines, and books today (Boston Women's Health Book Collective, 1984; Duffy, 1988).

Apparently, along with a positive attitude, mature women are developing their mental and physical potential by adopting health-promoting behaviors. In short, women are taking an active role in their current and future health.

Nurses must be prepared to teach and counsel women about all aspects of menopause.

During perimenopause, the endocrine system changes, and substantial physical changes can appear. Usually, these changes, under nature's control, do not go unnoticed. With menopause, as with aging in general, unexpected but unavoidable endocrinologic changes can affect specific body parts.

Physiologic Impact of Change in Endocrine Function

Cessation of menses is one of the most easily recognized changes in menopausal endocrinologic function, but the most clinically significant endocrine alteration is the decrease (abrupt or gradual) of circulating estrogen concentrations. For undetermined reasons, the ovaries are individually programmed to exhaust the supply of oocytes and surrounding cellular structures that produce most of the estrogen available during the reproductive years. Because the rate of ovarian decline can vary markedly, hormone fluctuation may

Successful nursing management of the perimenopausal client requires substantial knowledge of potential physical changes and hormone therapy options, together with supportive counseling techniques.

occur over many years. The loss of functioning ovarian follicles and the resulting decline in circulating estrogen also cause an alteration in the sex hormone output of the hypothalamus, pituitary gland, and adrenal glands (Olive & Hammond, 1986; Rinehart & Schiff, 1985; Scharbo-DeHaan & Brucker, 1991).

The physiologic impact of perimenopause generally includes these sometimes unexpected, but appreciable, complaints and silent indicators:

- Vasomotor changes can result in hot flashes associated with dizziness, nausea, headache, fatigue, heart palpitations, insomnia, diaphoresis, and night sweats (Olive & Hammond, 1986).
- Atrophy of the ovaries, vagina, urethra, bladder, mouth, skin, and breast-supporting tissue occurs, with potential complaints of urethral syndrome, dyspareunia, and skin and mucosal changes (Badawy, 1985; Droegemueller et al., 1987; Harper, 1990; Olive & Hammond, 1986).
- Bone loss can eventually result in osteoporosis (Olive & Hammond, 1986).
- Irregular vaginal bleeding can occur during the erratic release of hormones from declining ovaries and result in nuisance spotting or even anemia (Badawy, 1985).
- Hirsutism often appears because of an increase in the testosterone-estrogen ratio (Droegemueller et al., 1987).

Emotions Related to Fluctuating Hormone Levels

Emotional changes are recognized responses to the fluctuating hormone levels present in premenstrual syndrome, pregnancy, and postpartum depression. Similar symptoms also could be related to the hormone imbalance of perimenopause. The health literature is filled with controversy regarding the existence of some physical and most psychologic changes reported during menopause. With estrogen deprivation, neurotransmitters decrease opioid endorphin activity and modify dopamine and serotonin metabolism (Rinehart & Schiff, 1985). If estrogen replacement therapy (ERT) is tried and fails, then the combination of external stresses and the physical and emotional changes of aging might account for some of the symp-

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toms wrongfully ascribed to a loss of estrogen. However, the psychologic impact of menopause may appear perimenopausally and continue into the postmenopausal years, resulting in the following patient-reported symptoms:

- general malaise (Droegemueller et al., 1987)
- decreased libido (Lichtman, 1991)
- depression and feelings of inadequacy because of cessation of reproductive capability, loss of self-esteem, and aging in general (Droegemueller et al., 1987; Harper, 1990).
- mood swings (Harper, 1990).

Physical Symptomatology

Hot flashes, building into hot flushes, are examples of the interaction between the endocrine, thermoregulatory, and cardiovascular systems at the hypothalamic level. Fluctuating estrogen levels disrupt the balance between norepinephrine and dopamine and create vasomotor instability. Evidence suggests an increase in sympathetic drive at the onset of a flash, as demonstrated clinically by an increase in heart rate. Some women report heart palpitations. The hot flash can be followed by an acute rise in skin temperature that indicates peripheral vasodilation (a hot flush), yet core body temperature remains low. Hot flushes affect the skin of the head, neck, and chest and are sometimes accompanied by perspiration or clamminess. At times, a sensation of suffocation occurs. Night sweats are bedtime hot flashes, accompanied by perspiration, that usually cause awakening. The vasodilation that precedes a hot flash may yield enough of a physical response to interrupt sleep, even if that dilation does not result in a flash. Sleep that is of poor quality, perhaps not poor enough to awaken but disturbing enough to prevent restful sleep, could result in the anxiety, irritability, memory loss, general malaise, and mood swings that have been associated with the emotional changes of perimenopause (Droegemueller et al., 1987; Olive & Hammond, 1986; Rinehart & Schiff, 1985).

Atrophy, a wasting or reduction in size of a structure after having come to functional maturity, is pres-

ent in perimenopausal ovaries and mammary glands. Atrophy also occurs in the estrogen-sensitive tissues of the mouth, vagina, urethra, bladder, and skin. With the decreased estrogen levels of perimenopause, the outside layer of skin of these organs becomes thinner and drier, leading to difficulties with breast support, dryness of the buccal epithelium, dyspareunia, vaginitis, and vulvar irritation. Urinary symptoms such as frequency, burning, stress, and urge incontinence also may result.

Pelvic relaxation is related to a decrease in elastic tissue and a slowing of cell division and repair caused by advancing age. The skeletal muscles supporting the pelvic structures, such as the cardinal and uterosacral ligaments, are estrogen dependent. Thus, as supporting tissues and ligaments lose tone, the uterus, vagina, bladder, and rectum become predisposed to prolapse (Rinehart & Schiff, 1985).

The vagina exhibits marked atrophic changes secondary to estrogen deprivation. These changes include thinning and decreased glycogen in the epithelium, decreased Bartholin's gland activity, loss of rugae, and a reduction of lubrication during sexual intercourse. The vagina is easily traumatized, and loss of elasticity can result in a decrease in both caliber and depth. A decrease in blood circulation to the vaginal tissues occurs and results in devitalization of the cells lining the vaginal wall and an inferior exchange of fluids and electrolytes between supporting tissues and the vaginal canal. Besides causing vaginal dryness, altered electrolytes, lower glycogen, and elevated sodium content also transform the normally acidic vaginal pH to a neutral or alkaline state. This alteration compromises the vagina's physiologic protective mechanisms against bacteria (McCraw, 1991; Rinehart & Schiff, 1985). Depressed vaginal estrogen circulation also results in decreased vaginal secretions. Vaginal thinning occurs, causing vulnerability to tearing during sexual intercourse. Irritation by tight clothing may cause mucosa to bleed or harden (lichenification) (Harper, 1990). Vulvar changes include thinning and loss of subcutaneous adipose and connective tissue, leading to potential chronic irritation or even lesions. Aging is responsible for thinning cranial and pubic hair.

In general, atrophy of the urethra parallels the changes in the vagina. A consequence of urethral atrophy is the occurrence of dysuria, a frequent and urgent need to urinate commonly called the *urethral syndrome*. Estrogen benefits range from thickening of the urethral mucosa and supporting tissues to increased periurethral vascularity that leads to an increased urethral closure ability. Because estrogen receptors exist in the bladder and urethra, reduction of bladder and

urinary tract symptoms in perimenopausal clients has been obtained by regulated estrogen use (Rinehart & Schiff, 1985).

The buccal epithelium can undergo atrophy similar to vaginal and urethral mucosa. These changes result in decreased saliva and sensation, a bad taste in the mouth, and difficulty with increased caries or ill-fitting dental appliances (Harper, 1990; Lichtman, 1991).

Cutaneous and mucosal atrophy occurs during the process of aging, and decreased collagen in skin leads to even less resiliency and support. Poor skin turgor, itching, and wrinkles are the result of aging as well as decreased elasticity and blood supply caused by estrogen deprivation. Hyperpigmentation, or age spots, occurs because of benign proliferation of melanocytes. Hypopigmentation, known as vitiligo, is a result of loss of pigment, which is common in aging (Droegemueller et al., 1987; Harper, 1990).

A gradual reduction in adipose tissue and lobule size occurs in the breasts because of estrogen depletion. Eventually, the breasts develop the flattened appearance of atrophy, with fibrous tissue in place of fat. As elasticity is lost, the breasts become pendulous (Harper, 1990).

As the sex hormone balance shifts from estrogen to androgen dominance, hirsutism may occur, manifested in the growth of coarse hair on the upper lip, chin, back, chest, and abdomen. Excessive growth could indicate adrenal or ovarian pathology (Droegemueller et al., 1987). Existing alopecia also could increase in severity (Scharbo-DeHaan & Brucker, 1991).

Osteoporosis

Osteoporosis is a condition that involves a progressive reduction in bone mass, minerals, and matrix. Calcium is lost from the bone as a normal consequence of aging and is intensified by loss of estrogen. An increase in the bone resorption rate, along with a decrease in total bone volume accelerates with either surgical or natural menopause and proceeds at the rate of about 1% yearly for 5–10 years (Droegemueller et al., 1987; Lichtman, 1991; Olive & Hammond, 1986). Osteoporosis is characterized by a predisposition to fracture caused by excessive loss of trabecular bone. Women could eventually lose one-third of their bone mass (Rinehart & Schiff, 1985). The combination of estrogen, calcium, and weight-bearing exercise needs to be initiated before loss occurs because no therapy, at present, can replace bone that has already been lost. The etiology of primary osteoporosis is related to hormonal deficiencies, inadequate calcium supplementation, poor nutrition, physical inactivity, alcohol in-

take, nulliparity, and heredity (Droegemueller et al., 1987). Bone mass is naturally higher in black, obese, and tall women and lower in white or oriental, thin, short, and sedentary women (Droegemueller et al., 1987; Lichtman, 1991). A major problem for women with osteoporosis is an increased risk of arm, spinal column, and hip fractures because of a reduction in the quantity of bone (Droegemueller et al., 1987; Rinehart & Schiff, 1985).

Estrogen Replacement Therapy

As early as 1923, estrogen was characterized as a primary trophic hormone, a hormone sensitive to efferent nerves believed to control the growth and nourishment of the parts these nerves innervate. A naturally occurring source of endogenous estrogen is peripheral conversion of adrenal and ovarian androgens to estrone, but typically, this process does not generate enough estrogen to meet bodily needs. The rate of extraglandular estrone formation is directly proportional to the rate of production of androstenedione and aromatase activity in peripheral tissue. In obese menopausal women, this conversion is higher because of the abundant source of extraglandular estrone production in adipose tissues (Olive & Hammond, 1986; Stumpf, 1990).

Exogenous estrogen, ERT, is supplementary and can be obtained from oral tablets, transdermal patches, transvaginal creams or silicone rings, percutaneous gels, subcutaneous pellets, or parenteral injections (Peterson, Lee, & Rubin, 1985). After crossing the cell membranes, estrogen binds to specific protein receptors in the cytoplasm. The resulting complex attaches to nuclear DNA chromatin in the nucleus and promotes RNA and protein synthesis (Peterson et al., 1985).

The beneficial effects of estrogen replacement can be accomplished with a minimal dosage (0.625 mg) of conjugated estrogen or its equivalent. For most clients, this dosage is effective in the management of osteoporosis, the restoration of lubrication to premenopausal levels, increased fluid and electrolyte transfer, a return to an acidic vaginal pH, and control or elimination of hot flashes (Droegemueller et al., 1987; Rinehart & Schiff, 1985; Stumpf, 1990).

Estrogen also appears to decrease the risk of cardiovascular disease through a beneficial effect on lipids. For example, high-density lipoproteins increase and low-density lipoproteins decrease, thus promoting a favorable lipid profile (Lichtman, 1991). Studies have found that cardiovascular disease risk is lower in women than in men, until natural menopause or oophorectomy occurs and risks equalize (Harper, 1990;

Lichtman, 1991). Most research has studied women taking unopposed estrogen, so whether or not combination estrogen-progesterone therapy has the same effect on cardiovascular health remains undetermined (Harper, 1990; Lichtman, 1991; Rinehart & Schiff, 1985).

Potential Risks of Estrogen Replacement Therapy

Estrogen increases the likelihood of cellular proliferation, an event that produces apprehension about ERT leading to an increased incidence of cancer. Supplemental estrogen given in the absence of progestogens is thought to be responsible for a twofold to ninefold increased risk of endometrial cancer, according to Peterson et al. (1985). Lower estrogen dose, patient screening with follow-up monitoring, and coadministration of progesterone with estrogen have helped to eliminate the threat of endometrial hyperplasia by regulating the number of estrogen receptors (Peterson et al., 1985).

One might logically expect the mechanisms of estrogen-receptor depletion to operate the same way in the breast as in the endometrium, but the relationship between ERT and breast cancer continues to be controversial in the few small studies done (Harper, 1990; Lichtman, 1991). Although breast cancer appears to be modified by hormonal factors, malignancy arises from errors in cell division, and no overall causal effect of ERT on breast cancer risk has been demonstrated at this time. Because breast cancer may take up to 25 years to appear once the process has begun (Peterson et al., 1985), few, if any, studies have involved large enough groups of women exposed to long-term ERT to evaluate the risks thoroughly. Subclinical carcinoma of the breast may exist for 8 years before becoming palpable (Droegemueller et al., 1987). The literature does not demonstrate whether an effect is lacking or only apparently lacking because of short follow-up. Estrogen users are required by protocol to have regular breast exams and mammograms that would indicate an early diagnosis and possibly resolve a controversial risk consideration. Although estrogen stimulates the growth of the endometrium and breast tissue and may promote cellular proliferation, according to Peterson et al. (1985), estrogen is not a direct carcinogen.

Other potential risks of ERT include a suspected risk for thromboembolic disorders, gallstones, and hypertension, but most studies are unclear and fail to show a significant link unless prolonged, high-dose, and unopposed estrogen is used. A history of diabetes, hypertension, or infertility also has been suggested as

a questionable risk factor (Hammond & Nachtigall, 1985).

In sum, estrogen use appears relatively safe except in patients with specific disease states, such as estrogen-dependent neoplasms, thromboembolic disorders, and hepatic dysfunction (Hammond & Nachtigall, 1985). Nevertheless, the only recognized reasons for using hormone replacement therapy are to relieve hot flashes, retard vaginal atrophy, and prevent osteoporosis (Boston Women's Health Book Collective, 1984; Hammond & Nachtigall, 1985; Scharbo-DeHaan & Brucker, 1991).

Sexuality Concerns

The physiologic changes mentioned earlier may affect sexual functioning. In the sexual response cycle of estrogen deficiency, the vagina lubricates less, labial engorgement and clitoral erection are diminished, orgasm shortens, and uterine contractions lessen (Lichtman, 1991). Arousal, vaginal congestion, and the transudation of fluids may have a beneficial effect on maintaining normal vaginal flora, as well as on positively affecting sexual intercourse (Rinehart & Schiff, 1985; Scharbo-DeHaan & Brucker, 1991). Biologic changes are just one aspect of sexuality for mature women, however. Sexuality may be complicated by psychosocial factors, as well as physical limitations. Interpersonal relationships, motivation, and self-concept or body image can affect response to the stress and biologic changes of perimenopause and aging (Lichtman, 1991; Olive & Hammond, 1986; Stumpf, 1990).

Although psychogenic conditions, such as changing libido, may be estrogen responsive, the literature does not clearly indicate such linkages, because sexual dysfunction seems impossible to measure (Olive & Hammond, 1986). Loss of libido may be a consequence of dyspareunia, but that issue remains unresolved, as does the question of the role of depression in creating poor self-image that might lead to sexual dysfunction (Lichtman, 1991; Olive & Hammond, 1986). Dysfunction evidence that endorses the use of ERT in problems without prominent physical causes is unavailable (Harper, 1990; Lichtman, 1991; Olive & Hammond, 1986).

Social mores also can influence the sexual habits of mature women, and acknowledgment of and sensitivity to individual personal needs can be therapeutic. Sensual behaviors to discuss and possibly adopt may include the following:

- increased time for foreplay
- use of water-soluble lubricants

Nursing management of perimenopausal clients consists of supportive counseling, careful assessment, and education.

- careful stimulation of sensitive tissue
- increased communication between partners
- variations in sexual positioning
- perineal exercises, such as Kegels, to increase muscle tone (Lichtman, 1991).

Nursing Management

Nursing management of perimenopausal clients consists of supportive counseling, careful assessment, and education. Along with knowledge, empathy is required to understand and address the psychologic as well as physical needs of mature women. Unlike sympathy, which is an intellectual and more distant appreciation of another's plight, empathy involves shared feelings, a willingness to connect. An empathetic nurse can instill a sense of cohesiveness, even during crises of self-esteem, if connected with the feelings of perimenopausal clients. Accurate evaluation is achievable if assessment includes the whole spectrum of health, rather than attention to limited symptoms, circumstances, and opinions.

Some of the difficulties of perimenopause can be softened and potentially disabling problems avoided through education about aging, menopause, osteoporosis, sexuality, self-esteem, and treatment options.

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Duffy (1988) notes that a higher level of self-esteem encourages health promotion behaviors. Nurses who take time to listen and discuss health promotion are more apt to be successful in influencing women to address physical and emotional concerns, as well as in motivating women to make changes in self-care that will encourage peak performance for decades.

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