Table 1

<table>
<thead>
<tr>
<th>Menstrual Changes</th>
<th>Vasomotor Symptoms</th>
<th>Sexual Dysfunction</th>
<th>Mood Disorders</th>
</tr>
</thead>
<tbody>
<tr>
<td>Menorrhagia</td>
<td>Menorrhagia</td>
<td>Reduced libido</td>
<td>Cognitive changes</td>
</tr>
<tr>
<td>Oligomenorrhea</td>
<td>Oligomenorrhea</td>
<td>Pain with intercourse</td>
<td>Mood changes</td>
</tr>
<tr>
<td>Amenorrhea</td>
<td>Amenorrhea</td>
<td></td>
<td>Poor concentration</td>
</tr>
<tr>
<td>Irregular cycles</td>
<td>Irregular cycles</td>
<td></td>
<td>Impaired memory</td>
</tr>
<tr>
<td>Spotting</td>
<td>Spotting</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Common Symptoms Related to Perimenopause

Menstrual Changes
- Menorrhagia
- Oligomenorrhea
- Amenorrhea
- Irregular cycles
- Spotting

Vasomotor Symptoms
- Hot flashes
- Night sweats
- Sleep disturbances

Sexual Dysfunction
- Reduced libido
- Pain with intercourse

Mood Disorders
- Cognitive changes
- Mood changes
- Poor concentration
- Impaired memory

Women's Health

Table 2

<table>
<thead>
<tr>
<th>Other Possible Causes Of Hot Flashes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chronic Diseases:</strong> thyroid disorders, leukemia, pheochromocytoma, pancreatic tumors, renal cell carcinoma</td>
</tr>
<tr>
<td><strong>Medications:</strong> vasodilators, calcium channel blockers, bromocriptine, selective estrogen receptor modulators</td>
</tr>
<tr>
<td><strong>Neurologic Problems:</strong> stress and anxiety, brain tumors, migraines, spinal cord injuries, orthostatic hypotension</td>
</tr>
<tr>
<td><strong>Food Additives:</strong> nitrates, sulfites, red pepper, capsicin</td>
</tr>
<tr>
<td><strong>Alcohol Use</strong></td>
</tr>
</tbody>
</table>

Alcohol Use

stood. One study found that 86% of perimenopausal women reported loss of interest in sex as well as decreased responsiveness. Testosterone is the hormone thought to play the biggest role in libido, and it is unchanged during perimenopause. The presence of other symptoms, such as depression, vaginal atrophy, dyspareunia, anxiety and relationship difficulties, may play a role in libido change.

Perimenopause and Chronic Disease
The risk for chronic disease increases with age. Be attentive to the prevention and early detection of chronic diseases that particularly affect women. While the greatest bone loss occurs in the first 5 years after menstruation ceases, perimenopause can also be a time of bone degeneration. As estrogen levels decline, normal bone remodeling is altered, and more bone resorption than bone formation occurs. Patients at high risk for osteoporosis (Table 3) may need to be screened for bone mineral density at this time, not after menopause occurs. All women require education about how to preserve bone mass with diet, exercise, calcium and vitamin D.

Table 3

Risk Factors for Osteoporosis

- Female sex
- Early menopause (before age 50)
- Family history of osteoporosis
- Caucasian or Asian race
- Small body size
- Nulliparity
- Thyroid disease
- History of gastric bypass surgery
- Chronic condition requiring cortisone therapy
- Sedentary lifestyle
- Smoking (current or past)
- Excessive alcohol intake
- High-fat diet
- Low calcium and vitamin D intake
- Excessive caffeine intake

Dio. The secretion of FSH is also under the influence of inhibin, a glycoprotein hormone produced by the ovarian granulosa cells. The decrease in ovarian follicles results in a reduction in inhibin that leads to FSH elevation.

LH is also elevated in perimenopause, but to a lesser degree than FSH. The amount of circulating estrogen varies widely, and these levels are associated with increased follicular stimulation due to elevated FSH. The wide swings in estrogen can cause hypoestrogenic and hyperestrogenic states, making treatment difficult.4

Ovulation is unpredictable, leading to variations in progesterone levels. Hypoestrogenic periods become more frequent as menopause approaches.5,6 Remember that perimenopause is characterized by estrogen changes, not just low estrogen levels.

The changes in androgen levels associated with perimenopause are the subject of clinical controversy. Androgens are primarily produced in the ovary by interstitial cells. The other major source of androgens is the adrenal gland. Compared with a menstruating woman, the perimenopausal woman does not have a significantly different level of testosterone. But testosterone levels are noticeably lower in a postmenopausal woman.7 The lack of definitive changes in testosterone levels among perimenopausal women has made it difficult to determine the role of testosterone in the treatment of sexual dysfunction in premenopausal women.

Signs and Symptoms
The symptoms that may affect a woman’s quality of life during perimenopause are quite varied (Table 1). More than 80% of perimenopausal women report experiencing vasomotor symptoms.8 The most common one is hot flashes. These apparently occur when estrogen changes disrupt the balance between norepinephrine and dopamine, causing vasomotor instability.9 Rule out alternate causes of vasomotor symptoms before reaching a diagnosis of perimenopause. Many conditions can mimic vasomotor symptom (Table 2).

Mood and cognitive changes are also common during perimenopause, possibly the result of hormonal shifts. Memory problems and emotional instability may occur.10 These changes, in combination with significant life changes such as children moving out, altered spousal relationships and perceived loss of beauty increase a woman’s risk for depression.11,12

Psychosocial symptoms may affect quality of life more noticeably than physical symptoms. In a study of 214 perimenopausal women, participants did not cite vasomotor symptoms as the most significant cause of decreased quality of life. Instead, most women reported psychosocial symptoms such as emotional upheaval, anxiety and memory loss as most distressing. Using the Women’s Heath Assessment Scale and the Quality of Life Scale, researchers noted a slight but significant decrease in quality of life among the women.12

During the perimenopausal period, patients may complain of changes in sexuality. The most common are vulvovaginal atrophy and decreased libido. Vulvovaginal atrophy is related to decreasing estrogen levels. It may manifest as itching, dryness and irritation. Naturally occurring vaginal lubrication also declines with the gradual depletion of estrogen. Intercourse can become painful. About 75% of perimenopausal women experience one or more of these changes to sexual functioning.13

Decreased libido is also common during perimenopause. The precise mechanism of action for this symptom is poorly under-