Bioidentical Hormone Therapy

An Overview of Benefits and Prescribing Guidance
by Deborah Collins, NP

Hormones coordinate biochemical activity throughout the body. They are chemical messengers that orchestrate metabolic processes by stimulating all types of cell changes.

Hormone levels decline with age, disease and trauma. Beginning around age 35, daily production of most major hormones starts to slow. This decline affects metabolism, reproductive function, immune system function, physical and mental capacities and more.

By the fifth or sixth decade of life, hormone production is only about 25% of what it was in the second and third decades.

**Bioidentical Hormones**

Bioidentical hormones are structurally identical to the hormones created by the body. Although they are compounded from natural plant products, bioidentical hormones are compounded down to the same compound the human body makes.

As a result, bioidentical hormones are an exact fit for the body's receptors for that hormone.

Synthetic hormones are not an exact fit for the body's receptors. When they enter the body, they have the potential to break down into particles the body doesn't recognize — thus increasing the potential for unwanted side effects.

**Menopause**

Menopause results from decreased production of estrogen, progesterone and testosterone and manifests as the end of menstruation. Ovarian function starts to decline around age 40, and most women experience a transition period, perimenopause, during which they experience sporadic symptoms of menopause for 5 to 10 years.

Most women reach menopause between the ages of 45 and 55, but it can occur anytime between ages 40 and 59. Menopause that occurs before age 40 is considered premature and warrants further medical evaluation. Surgical menopause occurs when the ovaries are removed.

**Symptoms**

The symptoms of menopause are experienced in wide variations. They may include night sweats, hot flashes, insomnia, mood swings, irritability, concentration difficulty, memory changes, decreased sexual drive, fatigue, depression, vaginal dryness, pain with intercourse, muscle and joint aches and pains, menstrual irregularities and more. In addition, women face an increased risk for osteoporosis and heart disease when they enter menopause.

Table 1 outlines common symptoms of hormone deficits associated with menopause.

The severity of perimenopausal and menopausal symptoms can range from mild to severe. Some women experience a few irregular menstrual cycles or missed periods and have no bothersome symptoms whatsoever. Others start having hot flashes, mood swings or a number of other symptoms before they ever have an irregular period.

After menstruation stops, vasomotor symptoms may continue for another 5 to 10 years. In general, a woman's experience with menopause is usually similar to her mother's experience with it.

**Benefits of BHT**

In reflection of U.S. consumers' increasing interest in complementary health care and remedies, more women are interested in natural treatments for their menopausal symptoms. As a result of questions surrounding hormone

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therapy (HT) in general, many women seek an alternative to synthetic hormone therapy. Some try over-the-counter herbal remedies and find them sufficient; others with moderate to severe symptoms may find them ineffective.

Bioidentical hormone therapy (BHT) is a safe alternative to synthetic HT, but it requires the prescribing provider to be well informed about bioidentical hormones specifically and hormones in general. More than 200 published articles have documented the safety of BHT.¹

**Estrogen**

The human body produces three main estrogens: E1 (estrone), E2 (estradiol) and E3 (estriol). High levels of E1 significantly increase the breast cancer risk. Estrone is the primary estrogen produced by the body after menopause, which is why postmenopausal women are at greater risk for breast cancer.³ Regular alcohol use increases E1.

E3 (estriol) is the most protective type of estrogen.⁴ Studies suggest that E3 protects against breast cancer, and thus estriol is used in Europe and in the United States as a treatment for breast cancer. But at this time, the clinical consensus is that HT, including BHT in any form, is contraindicated in any woman who has a history of breast or ovarian cancer or who has a strong family history of breast or ovarian cancer.

Oral estrogen replacement (including most synthetic estrogen) passes through the liver, breaking down into more E1. Oral estrogen also increases blood pressure and the development of gallstones, and it can increase triglycerides and liver enzymes. Oral estrogen can also increase carbohydrate cravings and increase sex hormone-binding globulin, thus decreasing testosterone levels. In addition, E1 can also affect serotonin metabolism.

Given these facts, it is best to replace estrogen transdermally. Alternatively, estrogen can be administered sublingually in a troche, so that minimal amounts are absorbed through the digestive system.

The beneficial effects of natural estrogen are listed in Table 2.

**Progesterone**

Women also develop progesterone deficiencies with age, some starting as early as age 35. This can cause moodiness, irritability, concentration difficulty, depression and insomnia. When given orally or sublingually, progesterone affects the gamma-aminobutyric acid (GABA) receptors and has profound positive effects on mood and sleep patterns. Table 3 provides a more substantive list of progesterone’s beneficial effects.

Antidepressants and antianxiety medications should not be necessary if progesterone is replaced correctly. In fact, antidepressants can lower the body’s progesterone level — as can sugar, saturated fats and deficiencies in vitamin C, B6, A and zinc.³ Hypothyroidism can also decrease progesterone production. Therefore, when planning treatment for low progesterone levels, check thyroid levels and inquire about diet.

Synthetic progesterones are known as progestins. They do not produce the same effect as natural progesterone. Progestins can increase appetite and cause fluid retention, irritability, depression, weight gain, breast tenderness, bloating, headaches, nausea, insomnia and more.³ Synthetic progestin inhibits the protective effects of estrogen on the heart. In the Women’s Health Initiative trials, progestins — not estrogen — were the main culprit behind increased heart disease. The research showed that although synthetic progestin offered some protection against uterine cancer, it offered no protection against breast cancer.²⁶ Synthetic progestins also lower high-density lipoprotein (HDL) levels and raise low-density lipoprotein (LDL) levels.⁵

Natural progesterone is different. It lowers cholesterol. It helps lower blood pressure. It offers some protection against breast cancer. As a natural diuretic, it helps balance fluid in the cells. Natural progesterone increases the positive effects of estrogen on blood vessels. It also has a calming effect, acting as a natural antidepressant and sleep aid. Prometrium is a natural progesterone, but it has a peanut oil base and therefore should not be used on a long-term basis since it can lead to peanut allergy.³

**Testosterone**

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The benefits of testosterone are listed in Table 4. Many providers overlook the importance of testosterone replacement in menopausal women. Decreased or absent libido is a common complaint among postmenopausal women, since their testosterone levels decline along with their estrogen and progesterone levels. An inability to enjoy sex along with it.

While replacing estrogen and progesterone can help improve sexual symptoms to some degree, testosterone is most often prescribed to improve libido. In addition, testosterone helps maintain bone strength and muscle mass, improves skin tone, decreases bodyfat and helps improve memory and mood.

Not Just for Women

Although the main focus of this article is the replacement of hormones for women in menopause, it is important to note that men also experience a decline in hormones with age. Andropause is the male equivalent of menopause, and it is associated primarily with a decline in testosterone levels. The most common complaints associated with andropause are fatigue, loss of energy, decreased sex drive and libido and decreased erectile function. Men often associate these symptoms with advanced age, but a significant number of men experience andropause as early as their 40s and 50s. It is often the wife who complains first — of his loss of sexual desire, his "laziness" and his loss of "get up and go."

Depression is a common symptom of andropause. In addition, low testosterone is often associated with one or more of the following: fatigue, loss of interest in (and ability to perform) activities, loss of lean body mass, decrease in job performance, decrease in sexual performance, and prolonged recovery time from injury or illness.

In men, testosterone has a significant effect on blood glucose levels. All men with diabetes should be screened for testosterone deficiency. Replacement of testosterone in men with diabetes lowers blood glucose levels, and in many cases it can reduce the need for pharmacologic therapy. Testosterone also improves blood pressure, helps regulate cholesterol and offers protection against cardiovascular disease and Alzheimer's disease, particularly in men.

Testosterone is best administered transdermally in a gel or cream. Transdermal testosterone produces steady levels of the hormone, whereas injections create a significant and uncomfortable yo-yo effect. Testosterone should not be given orally (especially to men), because it can adversely affect the liver, and because it is not very effective in the oral route. Although studies have not proven that testosterone replacement causes prostate cancer, it should not be given to men with a history of active prostate cancer or elevated prostate-specific antigen.

DHEA

Dehydroepiandrosterone (DHEA) is produced mainly by the adrenal glands and in small amounts by the brain and skin. DHEA's main actions are through conversion to other hormones. It enhances the activity of testosterone, estrogen, progesterone and, to a smaller degree, many other hormones.

DHEA has other important functions as well, outlined in Table 5. Most notable are the enhancement of the immune system and an increased sense of well-being. People with low DHEA levels may feel fatigued, experience more autoimmune disorders and allergy symptoms, or get sick more often. Replacing DHEA boosts energy levels and helps the body deal with stress, as well as repair and maintain itself. DHEA also significantly improves bone growth and helps promote weight loss, while decreasing the formation of fatty deposits, especially around the middle.

Although DHEA is available without a prescription, there are several reasons why you should not encourage patients to buy DHEA over the counter. First, it is difficult to know whether the product actually contains the dosage on the label. Second, many OTC supplements contain unnecessary additives. All products are not equal in quality and purity. Unless the brand is highly reputable in these areas, compounded DHEA is preferred. Third, most women do not need the standard dosage of 25 mg that is recommended on OTC labels.

And finally, the DHEA stocked by many health food stores and pharmacies is not micronized. This shortens the product's duration of action and requires the patient to take it several times a day. The majority of women older than

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40 who have low DHEA levels require 15 mg to 20 mg of sustained-release oral DHEA daily. Compounded DHEA requires the provider to specify the precise dosage and form desired.

Implementing BHT

The effective management of menopause symptoms requires collaborative decision making with each patient. A thorough discussion of symptoms, problem areas, goals, and expected outcomes is essential. Women often have different views of what is bothersome to them, what they want to achieve (symptom relief vs. benefits of hormonal balance) and what they are willing to do to achieve these goals.

Begin each consultation with a thorough history that encompasses personal health history, social factors (e.g., alcohol use, drug use, nicotine use, diet and exercise), surgical history and medications. What has the patient tried in the past to control symptoms? Was it effective? Include a medical history for immediate family members.

Table 6 outlines the basic hormone panel to order for women who are interested in BHT. Table 7 lists additional recommended diagnostic tests to be done initially and with continued BHT. If these tests are ordered by another provider, it is important to obtain a copy for the patient’s record.

Table 8 provides basic guidelines for initial BHT dosages. Typically, the first prescription is a 3-month supply. The first follow-up should be scheduled 3 months after the start of therapy. Initially, it is preferable to separate the components of BHT to be administered. If one component needs to be adjusted, a combination product would require undesirable adjustment of multiple components. Alternatively, you could prescribe a 30-day supply with two refills or a 45-day supply with one refill, allowing adjustment before the refill is made. This can be preferable if the patient wishes to combine items for ease of administration, but it can take longer to reach the intended goal. Patients should expect to wait a minimum of 4 weeks to experience peak hormone activity, but many feel relief within 2 weeks.

Contraindications to BHT include personal history of breast, ovarian, or endometrial cancer and a strong family history of breast or ovarian cancer. These are not absolute contraindications, but close collaboration with an oncologist would be required for patients in this category. Other contraindications are unexplained vaginal bleeding or pregnancy.

BHT does not increase heart disease risk if it is given at the proper dosage and ratio. Patients with previous deep vein thrombosis require careful monitoring if they are taking oral estrogen. Women with known heart disease require annual routine labs (including lipid panel) and electrocardiograph testing. For any patient with a major medical problem such as heart disease, collaboration with the corresponding specialist is advised.

Follow-Up Intervals and Guidelines

At the first follow-up 3 months after the start of therapy, revisit the patient’s initial symptoms, determine progress and address any additional concerns. Side effects of BHT are rare, if the therapy is given appropriately, and in most cases they are related to some imbalance or the dosage, rather than an adverse event (e.g., progesterone dominance can cause bloating).

Lab tests to be performed at follow-up intervals include those corresponding with prescribed BHT. Routine labs should be rechecked annually. If changes in therapy are required, another 3-month follow-up is recommended.

If changes are not needed, the next follow-up visit should be scheduled for 6 months later. After that, annual visits are usually sufficient. Be sure to monitor routine Pap tests and mammograms, and bone density scans if indicated.

Putting It Into Practice

Some women require more frequent follow-up intervals than what has been described. Some need more dosage titration to reach their goals. Perimenopausal women typically report that their symptoms vary as their body continues to change.

While conventional medical therapy allows for a cookie-cutter approach, a more holistic, individualized approach is preferred to help patients achieve proper hormonal balance. NP

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References

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