

BIOIDENTICAL HORMONES OCTOBER 2006

Introduction

“Bioidentical hormones,” particularly estrogen and progesterone, have been promoted as safer and more effective alternatives to more traditional hormone therapies, often by people outside of the medical community. In fact, little or no scientific and medical evidence exists to support such claims about “bioidentical hormones.” Additionally, many “bioidentical hormone” formulations are not subject to FDA oversight and can be inconsistent in dose and purity. As a result of unfounded but highly publicized claims, patients have received incomplete or incorrect information regarding the relative safety and efficacy of hormone preparations that are referred to as “bioidentical.”

“Bioidentical hormones” are defined as compounds that have exactly the same chemical and molecular structure as hormones that are produced in the human body. Though any hormone can be made to be “bioidentical,” the term is often used to describe formulations containing estrogens, progesterone, and androgens. Replacement of estrogen and progesterone is a common and effective treatment for symptoms associated with menopause, but may carry some risk of potentially serious side effects. As women seek safer treatments, they often request “bioidentical hormones” from their physicians.

Background

The Women’s Health Initiative (WHI), a long-term study of a large number of women taking traditional hormone therapy or placebo, has raised concerns about hormone therapy. This has created an environment for the propagation in the lay media of the scientifically unproven idea that “bioidentical hormones” are safer and more effective than traditional hormone therapy. No such comprehensive study has been done to examine the effects of “bioidentical hormones.” In fact, very few long-term scientific studies assessing clinical outcomes have been completed on “bioidentical hormones.”

The WHI measured a number of criteria, including the incidence of cardiovascular disease, cancers, and bone fractures. The study was cut short due to the observations of increased risks of cardiovascular disease and breast cancer in women taking combination hormone therapy. There were positive effects such as a decreased risk of colorectal cancer and bone fracture, but it was concluded that the adverse events outweighed the benefits of hormone therapy of the type and dosage used in the WHI. Nonetheless, many physicians felt that the results of the WHI did not warrant a total discontinuation of hormone therapy. Rather, the scientific and medical community currently recommends that a menopausal or post-menopausal woman discuss her individual risks and benefits of hormone therapy with her physician. If they decide that hormone therapy would be overall beneficial, then the physician should prescribe a regimen and closely monitor her.

Considerations

The hormones used in the WHI are commercially available, and their chemical and molecular structures closely resemble, but do not exactly replicate, those of hormones produced in the human body. The dosage of each hormone used in the WHI was constant among those women receiving hormone treatment.

No medical or scientific evidence exists to support the idea that the adverse and/or beneficial effects found in the WHI resulted from the molecular structure of the synthesized hormones, nor is there any sound scientific evidence to show that a different or “customized” dose of hormones would have changed the outcome. If dosage and purity were equal, then all estrogen-containing hormone therapies, “bioidentical” or “traditional,” would be expected to carry essentially the same risks and benefits. Therefore, regardless of the source or structure of the hormone administered therapeutically, all hormone therapy regimens—even those that are so-called “customized”—must be carefully controlled.

Hormone customization is very difficult to achieve, because blood hormone levels are difficult to measure and regulate accurately due to normal physiologic variations. Nonetheless, proponents of “bioidentical hormones” assert that simple tests of saliva can provide the information necessary to customize hormone doses. They also allege that customized “bioidentical hormones” are safer and more effective than modified hormones synthesized under close FDA supervision. These claims are not supported by scientific data.

Patients can obtain “bioidentical hormones” in two ways—as FDA-approved preparations that are formulated with strict oversight and dispensed by retail pharmacies; or from compounding pharmacies, where the hormones are changed from their original form into another form, purportedly for individual customization. Often these contain combinations of different forms of estrogen and/or progesterone with different potencies. Since the final hormone formulations of most compounding pharmacies are not subject to FDA monitoring for dose, purity, safety, or efficacy there may be additional and at this point unknown risks associated with them. Post-market surveys of such hormone preparations have uncovered inconsistencies in dose and quality.¹

¹ FDA Center for Drug Evaluation and Research. Report: Limited FDA Survey of Compounded Drug Products. January 2003. Available at <http://www.fda.gov/cder/pharmcomp/survey.htm>.

Table 1 compares traditional hormone therapy with “bioidentical hormone” therapy.

Table 1

| | Traditional Hormones | Many “Bioidentical Hormones” |
|----------------------------|--|--|
| Molecular structure | Similar or identical ² to human | Identical to human |
| FDA oversight | Yes | No |
| Dosage | Monitored; accurate and consistent | Not monitored; may be inaccurate or inconsistent |
| Purity | Monitored; pure | Not monitored; may be impure |
| Safety | Tested; risks known | Not FDA tested; risks unknown |
| Efficacy | Tested and proven | Not FDA tested; unproven |
| Scientific evidence | Existent; conclusive | Insufficient |

² A few “bioidentical hormones”—those available from retail pharmacies, such as estradiol and progesterone—are produced under FDA supervision and are monitored for dosage and purity as are preparations of traditional hormones. However, even FDA-monitored “bioidentical hormones” have not been examined in long-term studies such as the WHI and, therefore, have unproven safety and efficacy.

The controversies surrounding the safety and efficacy of “bioidentical hormones” illustrate the need for further scientific and medical scrutiny of these substances. Until such studies are completed, physicians should exercise caution when prescribing “bioidentical hormones” and counsel their patients about the controversy over the use of these preparations. Additionally, patients should educate themselves about hormone therapies and engage in candid discussions with their doctors. Much consideration should be given to the decision to undergo any hormone therapy, and “bioidentical hormones” present unique and additional concerns because of the process by which many of them are made.

Positions

The Endocrine Society is concerned that patients are receiving potentially misleading or false information about the benefits and risks of “bioidentical hormones.” Therefore, the Society supports FDA regulation and oversight of all hormones—“bioidentical” and traditional—regardless of chemical structure or method of manufacture. This should include, but not be limited to, the following:

- Surveys for purity and dosage accuracy
- Mandatory reporting by drug manufacturers of adverse events
- A registry of adverse events related to the use of hormone preparations
- Inclusion of uniform information for patients, such as warnings and precautions, in packaging of hormone products