PHYSIOLOGIC TESTOSTERONE REPLACEMENT IN WOMEN WITH HYPOPITUITARISM

Panhypopituitarism is a disease that affects both men and women nationwide. It has been hypothesized that women who have Panhypopituitarism suffer from a decreased libido, a change in their body composition, decreased quality of life, and symptoms which are possibly correlated to androgen deficiency. In a recent study, women with Panhypopituitarism exhibited very small levels of total and free testosterone, DHEA, DHEAS and androstenedione. However, this study contained inaccurate data due to the fact that it was not conducted where a well-defined group of women with Panhypopituitarism was defined. Therefore, our aim was to treat women with hypopituitarism with a transdermal testosterone gel preparation over a 6-month time period, while examining subjective and objective measures of sexual function, cognitive function, quality of life, and physical function. We expect our patients' quality of life, thinking process, sexual function and body composition to improve tremendously, thus proving the clinical significance of androgen deficiency in women.

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INTRODUCTION

Hypopituitarism is a condition resulting from diminished secretion of pituitary hormones, especially those of the anterior lobe. Panhypopituitarism is the decreased secretion of multiple hormones. Hypopituitarism affects < 200,000 people in the United States and occurs in patients with either secretory or non-secretory pituitary adenomas. Hypopituitarism may be reversible by shrinkage as a result of drug therapy or removal of the tumor through surgery. It is classified as a rare disease by the Office of Rare Disease (ORD) of the National Institutes of Health (NIH).

Previous studies of testosterone supplementation for menopausal women (naturally or surgically) reported improvements in the subject's sense of well being and sexual function; however many of these previous studies used large doses of testosterone and impassive assays for the measurement of total and free testosterone levels that contained insufficient accuracy in the low range prevalent in women.

The effects of testosterone in women on body composition has not been previously studied, our aim was to find the clinical significance of androgen deficiency in women and to find out whether physiologic testosterone replacement of women with androgen deficiency can produce clinically meaningful progress in cognitive and sexual function, and muscle performance without virilizing side effects.

METHODS AND MATERIALS

Approval was received from the institution's IRB and participants were recruited via newspaper ads, flyers, and internet postings. Criteria for women were: aged 18–55 years, diagnosed with hypopituitarism with central adrenal and or gonadal deficiency, a BMI between 20 and 40, and no other significant medical conditions. Participants were seen in the clinical research center during the screening period. There the participants underwent complete physical examinations, a Pap smear, mammogram, and medical history. If the participant passed all the inclusion criteria, they signed consent forms and then had their blood drawn for a complete blood count, thyroid function test, urinalysis, estradiol, and other chemistries.

Participants who were already on growth hormone prior to the start of this study were put on all replacement hormones for 5 months and a stable dose of all hormones with optimized laboratory values for at least 3 months. Participants who were not on growth hormone previous to this study were placed on replacement hormones for 8 months and a stable dose of hormones with optimized laboratory values for 5 months. They were then randomized to receive growth hormone either in the morning when they woke up, or at night before they went to bed. Participants then returned for baseline studies including, cognitive function tests, sexual function tests, and muscle performance test.

After the run-in period and baseline studies were completed, participants were randomized to receive either testosterone gel or a placebo gel. Participants returned at 2 weeks, 3 months, and 6 months to perform

studies. After 6 months, we repeated the same baseline studies.

Results

Participants' cognitive function improved over the course of the study. Participants' sexual distress levels improved slightly. Post-study, participants' muscle performance surpassed that of healthy volunteers. Participants' sexual function also improved over the course of the study.

Discussion

Participants seemed to improve from their pre-baseline study levels. However, participants did not seem to improve as much in their sexual distress levels as they did with the other tests.

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