Estrogen, not just testosterone, affects the mid-life male

By ACSH Staff — September 12, 2013

Falling levels of testosterone are often blamed for some of the changes middle-aged men may see, such as larger waistlines, smaller muscles and decreased sex-drive. However, a new study published in the New England Journal of Medicine suggests that estrogen may also play a part. In younger women, most estrogen is produced in the ovaries. But in both men and women as they age, testosterone becomes a relatively key source of estrogen, which is produced from testosterone via the enzyme aromatase. Therefore, men with low levels of testosterone also have low levels of estrogen, making it hard to distinguish the roles of each hormone.

In an attempt to discover the individual roles of these hormones, researchers led by Dr. Joel Finkelstein from Massachusetts General Hospital gave men ages 20 to 50 goserelin, a hormone that suppresses both estrogen and testosterone production, and divided them into two groups for their 16-week study. The first group, consisting of 198 men, were given either a placebo or one of five doses of a testosterone replacement ranging from 1.25 to 10 grams: those in this group who received testosterone were also producing estrogen from the male hormone. The second group (202 men) were assigned to those same treatments, but were also given an aromatase inhibitor to block estrogen production.

In those men whose estrogen production remained suppressed by the aromatase inhibitor, levels of body fat increased at all levels of testosterone supplementation. In those men still producing estrogen, an inverse relationship was seen between estrogen levels and body fat: As estrogen levels decreased, body fat increased. Decreases in lean muscle mass, muscle size or leg strength, and sexual desire and function in both groups were seen only when testosterone levels were very low (among those men taking the placebo or 1.25 grams of the testosterone replacement).
Researchers say that this study warrants changes in the approach to evaluation and management of hypogonadism in men. Our findings indicate that estrogen deficiency is largely responsible for some of the key consequences of male hypogonadism, and suggest measuring estradiol [a form of estrogen] might be helpful in assessing the risk of sexual dysfunction, bone loss, or fat accumulation in men with hypogonadism.

However, ACSH’s Dr. Gilbert Ross urges caution when looking at this study. These findings are very counterintuitive because there has been no previous research suggesting that estrogen has such a key role to play in male fat accumulation and distribution. Further, this was a very small study and clearly more research is needed if it is going to be used to change approaches to evaluation and management of mid-life changes in men. This study should not serve as the rationale for men to start taking estrogen just yet.

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