

Testosterone improved insulin sensitivity in men

BY SUSAN LONDON

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LAS VEGAS – Testosterone improved insulin sensitivity and insulin signaling in diabetic men who were deficient in this hormone, finds a randomized trial reported at the annual meeting of the American Association of Clinical Endocrinologists.

Investigators led by Dr. Manav Batra of the University at Buffalo, State University of New York, assigned 41 men with hypogonadotropic hypogonadism evenly to receive intramuscular testosterone (250 mg) or placebo every 2 weeks for 24 weeks.

The testosterone dose was adjusted to achieve free testosterone levels in the mid-normal range for healthy young men. Main results of the trial showed that men in the testosterone group had a statistically significant 32% improvement in insulin sensitivity from baseline, but their counterparts in the placebo group had essentially no change in this measure.

Testosterone treatment also was associated with increased expression in adipose tissue of genes that mediate insulin signaling and decreased expression in mononuclear cells of genes that mediate insulin



DR. BATRA

resistance. Placebo treatment was not associated with any changes. The findings are important, as roughly one-third of men with type 2 diabetes have hypogonadotropic hypogonadism, and testosterone deficiency is linked to unfavorable metabolic, lipid, and anthropometric changes that may increase cardiovascular risk, according to Dr. Batra.

“Testosterone replacement reverses these changes, and there is decline in fat mass, increase in lean mass, decline in inflammatory markers, and improved insulin signaling and hence insulin sensitivity, which may potentially reduce cardiovascular risk,” he said.

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The study is consistent with earlier research linking both low and high testosterone levels with insulin resistance, said Dr. Edward S. Horton, co-moderator of the session in which the data were reported. The data show that, “for people who are hypogonadal, we should be treating them to improve insulin sensitivity and getting the beneficial effects of testosterone beyond just the androgenic effects,” maintained Dr. Horton, director of clinical research at the Joslin Diabetes Center and professor of medicine at Harvard Medical School, both in Boston.

VITALS

Key clinical point: Testosterone improved insulin sensitivity in diabetic men who were deficient in the hormone.

Major finding: Insulin sensitivity improved by 32% in the testosterone group but remained the same in the placebo group.

Data source: A randomized trial of 41 diabetic men with hypogonadotropic hypogonadism.

Disclosures: Dr. Batra disclosed no relevant conflicts of interest.

A comparison of 41 hypogonadal diabetic men participating in the trial with 50 eugonadal diabetic men showed that the former had a host of adverse cardiometabolic measures versus the latter.

Among other favorable changes seen with testosterone treatment, men in that group had improvements from baseline in levels of insulin, homeostatic model assessment of insulin resistance (HOMA-IR), leptin, and C-reactive protein, Dr. Batra reported. Meanwhile, these measures remained unchanged in the placebo group. Testosterone therapy was not associated with any significant improvements in levels of glucose or glycated hemoglobin, or in lipid profiles.