**TESTOSTERONE AND CARDIOVASCULAR DISEASE**

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The sex hormone testosterone plays a major role in gender-related cardiovascular health. Total and free serum testosterone levels, however, decline steadily after age 30 years and as many as 1/3 of men >45 and one half of men >85 years of age make the diagnostic criteria for primary hypogonadism. Compared to men with normal testosterone levels, men with hypogonadism have lower lean body mass, higher fat mass, higher blood pressure, higher degrees of insulin resistance, lower arterial elastance, higher carotid intima-media thickness, and elevated biomarkers of inflammation. Hypogonadal men also are more likely to experience fatigue, low energy, depressed mood and reduced vitality. Advanced testosterone deficiency may lead to anemia, and osteoporosis. Several studies have shown higher all-cause and cardiovascular mortality in association with hypogonadism. Testosterone replacement therapy is effective in normalizing hormone levels in >2/3 of men with hupogonadism and has been shown to improve muscle mass, reduce weight, reverse other components of metabolic syndrome, and reduce incidence of atrial fibrillation, myocardial infarction, as well as all-cause and cardiovascular mortality. A recent international consensus statement has endorsed testosterone replacement therapy in symptomatic hypogonadal man and refutes any increase risk of cardiovascular events or prostate cancer. A recent study has indicated an increase in non-calcified plaque volume, as assessed by coronary computed tomographic angiography, in men receiving testosterone replacement therapy. However, the study has included a subset of pre-randomized patient population for a larger study (The Testosterone Trial sponsored by the National Institutes of Health) and, thus, significant baseline differences existed between placebo and testosterone treated subjects.

**Conclusion:** Although properly designed randomized controlled trials are needed, there is enough justification for not denying symptomatic patients with primary hypogonadism the potential long term benefits of testosterone replacement therapy.