High testosterone levels and lower heart risks tied together

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(Medical Xpress) -- A new study published in the *Journal of the American College of Cardiology* reports that higher natural levels of testosterone in elderly men may reduce their risk of a heart attack or stroke.

The study was conducted by the Wallenberg Laboratory for Cardiovascular Research in Sweden and led by Ana Tivesten from Sahlgrenska University Hospital. Researchers followed 2,400 elderly men in their 70s and 80s for five years. They measured testosterone levels in the men and broke them down based on their testosterone levels. The upper range consisted of 606 men and the lower range consisted of 604 men.

In following these men for five years, 16 percent of the men in the upper range suffered from a heart attack, stroke or severe chest pain compared to 21 percent of those in the low testosterone range. Lower testosterone levels are often a marker of other medical conditions that can contribute to cardiac risk. The researchers took into consideration a number of different factors including weight, blood pressure and diabetes, but in the end, the men with the higher levels of testosterone still showed a 30 percent lower risk of stroke or heart disease than the remaining members of the study participants.

While the researchers say this does not rule out the possibility that something besides testosterone is responsible, they do believe that more studies need to be conducted to look at the connection and possible

benefits of testosterone therapy. However, current trials have shown mixed results and there is currently no evidence that testosterone replacement works the same as natural testosterone.

Researchers advise men to work on increasing their testosterone levels naturally through a healthy diet and exercise. These activities, in addition to possibly increasing their testosterone levels, will also help to reduce their risk of heart disease and stroke.

Hormone replacement therapy has already raised flags when it was used in women to reduce the risk of heart disease and osteoporosis. However, it was later determined that women who took estrogen and progesterone were at a higher risk of blood clots, heart attacks, stroke and breast cancer. Hormone replacement therapy is now only used in women to treat severe hot flashes and the doses have been greatly decreased and not used as a long-term therapy. The same caution needs to be used when looking at testosterone replacement therapy.

More information: High Serum Testosterone Is Associated With Reduced Risk of Cardiovascular Events in Elderly Men, *J Am Coll Cardiol,* 2011; 58:1674-1681, doi:10.1016/j.jacc.2011.07.019

Abstract

Objectives: We tested the hypothesis that serum total testosterone and sex hormone–binding globulin (SHBG) levels predict cardiovascular (CV) events in community-dwelling elderly men.
Background: Low serum testosterone is associated with increased adiposity, an adverse metabolic risk profile, and atherosclerosis. However, few prospective studies have demonstrated a protective link between endogenous testosterone and CV events. Polymorphisms in the SHBG gene are associated with risk of type 2 diabetes, but few studies have addressed SHBG as a predictor of CV events.

Methods: We used gas chromatography/mass spectrometry to analyze baseline levels of testosterone in the prospective population-based MrOS (Osteoporotic Fractures in Men) Sweden study (2,416 men, age 69 to 81 years). SHBG was measured by immunoradiometric assay. CV clinical outcomes were obtained from central Swedish registers.
Results: During a median 5-year follow-up, 485 CV events occurred. Both total testosterone and SHBG levels were inversely associated with the risk of CV events (trend over quartiles: $p = 0.009$ and $p = 0.012$, respectively). Men in the highest quartile of testosterone (550 ng/dl) had a lower risk of CV events compared with men in the 3 lower quartiles (hazard ratio: 0.70, 95% confidence interval: 0.56 to 0.88). This association remained after adjustment for traditional CV risk factors and was not materially changed in analyses excluding men with known CV disease at baseline (hazard ratio: 0.71, 95% confidence interval: 0.53 to 0.95). In models that included both testosterone and SHBG, testosterone but not SHBG predicted CV risk.
Conclusions: High serum testosterone predicted a reduced 5-year risk of CV events in elderly men.