In late 2004, we expanded upon the then newly accepted concept of male menopause, also known as andropause. As referenced in that article, the existence of a male menopause had been understood since the early 1940s, when a *Journal of the American Medical Association* article highlighted the condition. The idea of male menopause languished for another 60 years before gaining widespread attention. It wasn't until the earlier part of this decade that a large amount of popular focus was directed to andropause. Five years later, andropause has certainly become more accepted in the medical world and, in terms of coverage, much research and writing has been produced. Testosterone prescriptions increased by 50% from 2001 to 2005, totaling 2.3 million prescriptions in 2005.

At this point, however, one would imagine that all older men (40+ years) would be screened for testosterone levels at their doctors' visits. Yet in my clinical experience, I still continue to receive a large number of male patients who, despite seeking my care for hypogonadal symptoms, were never tested nor questioned about testosterone at their primary-care physician visit. Clearly, the need for male hormone balance exists; the reasons that men do not have their testosterone levels evaluated remain to be elucidated. My suspicion is that there is still much fear and ignorance when it comes to testosterone restoration. Fortunately, research science has provided convincing, albeit preliminary, evidence of the safety and widespread benefits of restoring optimal testosterone levels in men and women, for that matter.

Testosterone replacement provides numerous benefits for older males with lower levels. What constitutes “older” and “lower levels” is subject to debate; but for our purposes, men 40 or more years in age with testosterone levels low enough to allow for symptoms will qualify. At this time, it appears that the benefits of testosterone supplementation far outweigh the risks. Most controversial is the possible stimulation of prostate cancer from testosterone replacement; however, this traditional concern appears to have little to no evidence. In fact, newer understandings about testosterone and prostate cancer point to a greater risk of prostate cancer with lower serum testosterone levels.

This being said, these studies do not give license to wanton testosterone replacement in every man. As always, the decision to prescribe must be based on an individual case basis. And while the benefits of testosterone supplementation (to be covered in greater detail) are well established, it is neither a cure-all nor the only modality to be used for creating health in aging males.

I personally recommend that men who present with age-related hypogonadal symptoms (erectile dysfunction, poor libido, decreased muscle mass, fatigue, lethargy, depression, osteoporosis, decreased facial and body hair, hot flashes, gynecomastia) start with lifestyle therapies treating the primary cause of low testosterone levels: excess caloric intake, sedentary lifestyle, high stress/poor resolution, etc. Simply replacing testosterone without addressing causes will only buy some time against the ticking clock of lifestyle disease. This goes the same for nearly every chronic condition; changing the diet to a whole-foods base and increasing physical activity will assist in weight loss (thereby decreasing the amount of testosterone that is aromatized to estrogen) and will also serve to lower sex hormone binding globulin (SHBG). SHBG is problematic in that it tends to rise with age ("normal" testosterone profiles have 50% of total testosterone tightly bound to this hormone), thereby increasingly binding up the decreasing amounts of available free testosterone. All of this belies the question, do poor lifestyle choices (excess caloric intake, alcohol, stress, and lack of activity) accentuate age-related declines in testosterone levels? Currently, it is
not known whether reductions in testosterone cause poor health or are a marker of preexisting disease (illness can lower testosterone levels as well).

While there is no direct answer, some research suggests that age-related increases in body-fat mass are related to decreasing testosterone and growth hormone levels. An older study demonstrated that body mass and age were independent factors in determining testosterone levels, with loss of fat-free mass (muscle) accompanied by increases in fat mass.11

If a man can achieve lasting dietary and activity changes resulting in a relative normal return to baseline parameters (blood pressure, pulse, weight, etc.), he will have more success with testosterone replacement, and greater benefit in terms of chronic disease prevention. Testosterone is well known for its libido- and sexual-function-enhancing properties; this is what in all likelihood drives men to seek hormonal replacement. And while an important part of life, libido and sexual function take second stage to the other benefits of testosterone. (Although we can argue that sexual function may be directly related to cardiovascular health, a primary male health concern).

Cardiovascular Health

Newer evidence suggests that lower serum testosterone levels are associated with increased all-cause mortality from coronary heart disease.12 Further, when serum testosterone levels are elevated to “normal” levels, this confers benefit on pathophysiological markers and clinical heart disease symptoms. As complicated as the atherosclerotic process is, it is suggested that several other related factors (type 2 diabetes, erectile dysfunction, obesity, and metabolic syndrome) may indeed benefit from testosterone therapy. Low testosterone levels are associated with more coronary artery disease and atherosclerosis.13-15 Also, low testosterone is associated with decreased cardiac output.14 Replacing testosterone can improve cardiac symptoms in ischemic heart disease (prolonged time to development of ischemic changes and improved exercise time).16

A literature review compiled of articles regarding androgen deficiency and vascular disease revealed interesting ties between low testosterone and cardiovascular disease.17 This review revealed that low testosterone (whether due to hypogonadism or androgen deprivation therapy) had significant adverse cardiovascular effects. It was associated with increased total cholesterol, low-density lipoprotein, increased arterial wall thickness, increased proinflammatory cytokines, and endothelial dysfunction. Conversely, this review showed that supplementing testosterone decreases proinflammatory molecules, total cholesterol, and triglycerides. It restores arterial reactivity and improves endothelial function. It may, however, reduce HDL levels as well.

Testosterone is only one part of the puzzle of cardiovascular disease. Diet, exercise, and a healthy lipid particle profile are hallmarks of treatment, including consideration of highly sensitive C-reactive protein (hs-CRP) and homocysteine levels.

Mental Health

Low testosterone levels are also well known to affect mental emotional state. The hypogonadal symptoms of lethargy, fatigue, and “lack of drive” are often present in aging male patients when prompted. Symptoms such as these are part of the clinical picture, especially when thorough history and physical reveal no direct causes. In my own practice, men who present with depression often have lower testosterone levels; supplementation can improve depression symptoms. A meta-analysis showed a significant positive effect of testosterone replacement in depressed, hypogonadic male patients.18

Alternatively, a study of nearly 4000 men showed that those diagnosed with depression had significantly lower testosterone levels than the men who were not depressed.19 Low testosterone is not the singular cause of depression in older men; however, it certainly plays a contributory role and should be investigated as part of any depression work-up along with other biochemical evaluations (rather than a solitary clinical interview – which is the typical work-up).

Musculoskeletal Health

Low testosterone in aging men is well known to contribute to the loss of lean body mass (muscle tissue) and correspondent increase in body fat; at the same time, the anabolic hormone testosterone exerts positive effects on bone density as well.20 While other hormones play a role in male bone health (estrogen, namely), it has been shown that low testosterone can contribute to poorer bone density. Men with low estradiol and/or high SHBG had the greatest risk of fracture, while men with the lowest testosterone and normal estrogen levels had no different fracture outcome. However, men with low testosterone and high SHBG had a higher risk of fracture; those with low estrogen, low testosterone, and high SHBG were at highest risk.21 This study demonstrates the interesting dynamic between these three hormones and shows that testosterone can be an important factor in male bone health.

Management of Testosterone Supplementation

Testosterone supplementation must be accompanied by careful clinical monitoring before and after implementation. As stated earlier in this article, the thinking that testosterone can stimulate the growth of prostate cancer is becoming more narrowly accepted; however, prescribing physicians must be ever vigilant for the possibility of inducing prostatic cancer. At this point, it is safe to say that testosterone may induce the growth of preexisting prostate cancers; and testosterone supplementation is contraindicated in men with prostate cancer.
Measuring testosterone levels should also be accompanied by estradiol and basic hematologic, chemistry, and prostate screening at both the outset of therapy and at 30, 90, and 180 days later, followed by at least annual screening (include a prostate exam). Testosterone supplementation is not without risks (polycythemia, liver dysfunction, increased aromatization to estrogen, and other symptoms) and needs to be closely monitored for side effects. Many experienced physicians favor the use of topical gels for application; oral dosing does not approximate physiological patterns, and metabolism of the hormone must be taken into account; levels are often inconsistent. Topical dosing, while more laborious, provides a regular, close to physiologic pattern of dosing. Injections will provide very high levels followed by troughs in serum levels between dosing. This creates a roller-coaster effect on testosterone levels and is typically not favored by men.

Notes

Naturopathic Perspectives


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