Do testosterone injections increase libido for elderly hypogonadal patients?

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Evidence-based answer

Yes, testosterone therapy is effective in improving libido for elderly hypogonadal males (strength of recommendation [SOR]: **B**, based on small randomized controlled trials [RCTs]). Testosterone combined with estrogen can also improve libido for postmenopausal women, but it's not approved by the US Food and Drug Administration (FDA) for this purpose (SOR: **B**, based on small RCTs).

Clinical commentary

Offer testosterone replacement—and candid talk about risks and alternatives

Sexual dysfunction is a relatively frequent complaint from elderly patients, and its multifactorial nature must be investigated. If you discover low or hypogonadal testosterone levels in a male patient, offer replacement therapy. Be sure, too, to discuss the risks and the alternatives (including psychological aspects of care and partner communication). If your patient is a postmenopausal woman who is interested in combination estrogen and testosterone therapy, you should counsel her on the estimated 17% increased risk of breast cancer per year of use.[1]

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Testosterone by any route improves libido and sexual function

Evidence summary

Sexual dysfunction includes desire, arousal, orgasmic, and sex pain disorders. In the US, 43% of women and 31% of men experience sexual dysfunction. Since sexual dysfunction increases with age, the prevalence will likely increase with the aging American population.[2]

Testosterone helps men, but long-term risks are unclear

Several cross-sectional and longitudinal studies[3,4] demonstrate that serum total and free testosterone concentrations in men decline with age. Although the decline is gradual, by the eighth decade 30% of men have total testosterone values in the hypogonadal range and 50% have low free testosterone values.[4]

In randomized, placebo-controlled trials[5,6] of older men with low testosterone concentrations, testosterone administration was associated with a sustained increase in testosterone levels over 1 to 3 years. Regardless of the route of administration (gel, transdermal patch, or intramuscular injection), testosterone replacement results in improved libido and sexual function for men with low testosterone levels.[6–8] The caveat, though, is

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The goal should be a testosterone level in the midnormal range

that testosterone trials of older men are characterized by very small sample sizes (n=10–50), disparate outcome measures, and the inclusion of men who were not uniformly testosterone-deficient and were asymptomatic.

In addition, these studies did not have sufficient power to detect either meaningful gains in patient-important outcomes or changes in prostate or cardiovascular event rates.[5,6,8,9] Thus, the long-term benefit/risk ratio of testosterone replacement therapy for aging hypogonadal men is unknown.

Less evidence for women

Up to 50% of postmenopausal women experience sexual dysfunction,[10] and a low testosterone level is correlated with a decreased coital frequency.[11] Some studies suggest that testosterone at supraphysiological doses—by injections, implants, or pill (in combination with estrogen)—improves libido and sexual function.[12–14]

The downside is that these studies are very small and have several methodological shortcomings. The pharmacokinetics of testosterone formulations for women are unclear, and the assays for the measurement of total and free testosterone concentrations in women lack accuracy and sensitivity. Long-term safety studies on breast cancer and cardiovascular events are lacking.

Testosterone's major adverse effects include virilization (oily skin, acne, hirsutism, alopecia, deep voice), liver toxicity, polycythemia, breast carcinoma, and unfavorable changes in cardiovascular risk markers such as reduction in high-density lipoprotein cholesterol or insulin sensitivity.[5–8,12–15]

Recommendations from others

American Association of Clinical Endocrinologists guidelines for menopause[16] recommends against the general use of testosterone therapy at menopause, except for women with continuing symptoms during adequate estrogen therapy.

The Endocrine Society[17] recommends that clinicians consider offering testosterone therapy on an individualized basis to older men with low testosterone levels and significant symptoms of testosterone androgen deficiency. Before administration, it's important to discuss the uncertainties, risks, and benefits of testosterone therapy in older men.

The Endocrine Society also recommends against starting testosterone therapy for patients with breast or prostate cancer, a palpable prostate nodule or induration or prostate-specific antigen >3 ng/mL without further urological evaluation, erythrocytosis (hematocrit >50%), hyperviscosity, untreated obstructive sleep apnea, severe lower urinary tract symptoms with an International Prostate Symptom Score (IPSS) >19, or class III or IV heart failure. When testosterone therapy is instituted, the goal should be to achieve testosterone levels in the midnormal range. This guideline recommends evaluating the patient 3 months after treatment initiation and then annually to assess whether he or she has responded to treatment and whether the patient is suffering any adverse effects.[17]

The Institute of Medicine examined the effectiveness and safety of testosterone therapy for older men. The report[18] states that its use is appropriate only for those conditions approved by the FDA (primary and secondary hypogonadism among men), and that it is inappropriate to use testosterone replacement therapy to prevent possible future disease for otherwise healthy older men. The committee found no compelling evidence of major adverse effects resulting from testosterone therapy.[18] ■

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