

Abstract

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Adverse effects of testosterone replacement therapy: an update on the evidence and controversy.

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BACKGROUND: Testosterone replacement therapy (TRT) has been used in millions of men worldwide to treat diminished libido and erectile dysfunction, and to improve strength and physical function. The estimated likelihood of adverse effects of long-term TRT is still essentially unknown, as overall high-quality evidence based upon prospective randomized trials to recommend for or against its use in most men with testosterone deficiency (TD) is lacking.

FINDINGS: Evidence to suggest that TRT increases cardiovascular morbidity and mortality risks is poor, as results vary across study populations and their baseline comorbidities. While TRT may increase serum prostate-specific antigen levels in some men, it often remains within clinically acceptable ranges, and has not been shown to increase the risk of prostate cancer. Current literature supports that TRT does not substantially worsen lower urinary tract symptoms, and may actually improve symptoms in some men. Limited evidence suggests that TRT may initially worsen obstructive sleep apnea in some men, but that this is not a longstanding effect. TRT may result in erythrocytosis in some men, however long-term studies have not reported significant adverse events (e.g. cerebrovascular accident, vascular occlusive events, venous thromboembolisms).

CONCLUSIONS: Future research will require dedicated focus on evaluation of large, multiethnic cohorts of men through prospective trials to better elucidate both risk and hazard ratios of TRT as it relates to cardiovascular disease, prostate cancer, lower urinary tract symptoms, obstructive sleep apnea, erythrocytosis, and other to-be-determined theoretical risks in men both with and without cardiovascular risk equivalents.

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