

Circulation: Heart Failure

circheartfailure.ahajournals.org

Circulation: Heart Failure. 2012;5:315–321

Published online before print April 17, 2012, doi: 10.1161/

CIRCHEARTFAILURE.111.965632



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Original Articles

Testosterone Supplementation in Heart Failure

A Meta-Analysis

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Abstract

Background—Low testosterone is an independent predictor of reduced exercise capacity and poor clinical outcomes in patients with heart failure (HF). We sought to determine whether testosterone therapy improves exercise capacity in patients with stable chronic HF.

Methods and Results—We searched Medline, Embase, Web of Science, and Cochrane Central Register of Controlled Trials (1980–2010). Eligible studies included randomized controlled trials (RCTs) reporting the effects of testosterone on exercise capacity in patients with HF. Reviewers determined the methodological quality of studies and collected descriptive, quality, and outcome data. Four trials ($n=198$; men, 84%; mean age, 67 years) were identified that reported the 6-minute walk test (2 RCTs), incremental shuttle walk test (2 RCTs), or peak oxygen consumption (2 RCTs) to assess exercise capacity after up to 52 weeks of treatment. Testosterone therapy was associated with a significant improvement in exercise capacity compared with placebo. The mean increase in the 6-minute walk test, incremental shuttle walk test, and peak oxygen consumption between the testosterone and placebo groups was 54.0 m (95% CI, 43.0–65.0 m), 46.7 m (95% CI, 12.6–80.9 m), and 2.70 mL/kg per min (95% CI, 2.68–2.72 mL/kg per min), respectively. Testosterone therapy was associated with a significant increase in exercise capacity as measured by units of pooled SDs (net effect, 0.52 SD; 95% CI, 0.10–0.94 SD). No significant adverse cardiovascular events were noted.

Conclusions—Given the unmet clinical needs, testosterone appears to be a promising therapy to improve functional capacity in patients with HF. Adequately powered RCTs are required to assess the benefits of testosterone in this high-risk population with regard to quality of life, clinical events, and safety.