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Testosterone and depression: systematic review and meta-analysis.

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Abstract

BACKGROUND: Studies suggest that testosterone (TT) replacement may have an antidepressant effect in depressed patients.

OBJECTIVE: The objective of this study was to explore the effect of TT administration on depression using both a systematic review of the literature and a meta-analysis.

METHODOLOGY: A search was conducted of MEDLINE, the Clinical Trials Registry, and Cochrane Central for English-language publications concerning randomized, placebo-controlled trials involving use of TT therapy in depressed patients. We searched for additional trials in the individual reference lists of the articles identified in the search. A study was judged to be relevant for inclusion in this review and meta-analysis if it reported original data from a controlled trial comparing use of TT and placebo in patients diagnosed with a depressive disorder according to DSM criteria, and the treatment response was evaluated according to changes on the Hamilton Rating Scale for Depression (HAM-D). We extracted the following data from the identified studies: study source, total number of participants in the study and in each treatment group, participants' ages, number of participants with a diagnosis of hypogonadism or HIV/AIDS, study duration, type of intervention, and change in HAM-D scores in the groups receiving TT versus placebo. The meta-analysis evaluated the effect of TT replacement on response in depressed patients as measured by change in HAM-D scores in the available placebo-controlled, randomized clinical trials.

RESULTS: Seven studies (N=364) were identified that included a placebo-control group in a double-blind design. Eligibility criteria were clearly reported in all trials. Meta-analysis of the data from these seven studies showed a significant positive effect of TT therapy on HAM-D response in depressed patients when compared with placebo ($z=4.04$, $P<0.0001$). Subgroup analysis also showed a significant response in the subpopulations with hypogonadism ($z=3.84$, $P=0.0001$) and HIV/AIDS ($z=3.33$, $P=0.0009$) as well as in patients treated with TT gel ($z=2.32$, $P=0.02$).

CONCLUSIONS: TT may have an antidepressant effect in depressed patients, especially those with hypogonadism or HIV/AIDS and elderly subpopulations. The route by which TT is administered may play a role in treatment response.

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