Beneficial effects of testosterone replacement for the nonmotor symptoms of Parkinson disease.

Okun MS - *Arch Neurol* - 01-NOV-2002; 59(11): 1750-3
From NIH/NLM MEDLINE

NLM Citation ID:
12433262 (PubMed)

Full Source Title:
Archives of Neurology

Publication Type:
Journal Article

Language:
English

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Abstract:
OBJECTIVE: To investigate whether a single daily dose of testosterone replacement gel has beneficial effects on testosterone deficiency symptoms, cognitive function, nonmotor symptoms of Parkinson disease (PD), and motor symptoms of PD. BACKGROUND: Recently it has been observed that testosterone replacement therapy improves refractory nonmotor symptoms in testosterone-deficient men with PD. Many of the symptoms of testosterone deficiency are nonspecific and overlap with the nonmotor symptoms of PD, such as decreased enjoyment of life, lack of energy, sexual dysfunction, and depression. Replacement therapy for men with PD and comorbid testosterone deficiency may be an important addition to antiparkinsonian management strategies. METHODS: A prospective open-labeled pilot study of testosterone topical gel (5 g of AndroGel; Unimed Pharmaceutical Inc, Deerfield, Ill) administered daily to testosterone-deficient (free testosterone <80 pg/mL) men with PD. All 10 patients were followed up for 1 month and 6 patients were followed up for a total of 3 months. Patients were administered a battery of testosterone deficiency questionnaires, cognitive studies, and scales of PD nonmotor and motor function at baseline, 1, and 3 months. RESULTS: With the daily transdermal testosterone gel, patients had an average increase in levels of free testosterone from baseline (53 pg/mL) to a 1-month follow-up visit (131 pg/mL; P =.06) and to a 3-month follow-up visit (98 pg/mL; P =.04). Testosterone deficiency symptoms improved in these patients (St Louis Testosterone Deficiency Questionnaire) from baseline (7.9 deficiency symptoms) to 1 month (5.6 deficiency symptoms, P =.04) and 3 months (5.8 deficiency symptoms, P =.08). The Unified Parkinson's Disease Rating Scale IV showed improvement at 1 month (P =.008). Additionally, there were trends toward improvement in the following scales: Unified Parkinson's Disease Rating Scale I at the 3-month follow-up (P =.09), Letter Fluency at the 3-month follow-up (P =.08), and the Hamilton Anxiety Scale at the 1-month follow-up (P =.09). CONCLUSIONS: A daily dose of transdermal testosterone gel improved testosterone deficiency symptoms in men with PD. Although there were trends in improvement in other nonmotor and motor symptoms of PD, future placebo control studies will need to be powered to answer these important questions. Whether testosterone deficiency is simply a comorbidity in PD or whether it plays a role in the pathogenesis of disease also remains for future study.

Major Subjects:

- Hormone Replacement Therapy / * methods / statistics & numerical data
- Parkinson Disease / blood / * drug therapy / physiopathology
- Testosterone / blood / * deficiency / * therapeutic use

Additional Subjects:

- Administration, Topical
- Aged
- Follow-Up Studies
- Humans

- Male
- Middle Aged
- Pilot Projects
- Prospective Studies

Chemical Compound Name:
58-22-0(**Testosterone**)

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