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Brief Report
Sildenafil use in patients with olanzapine-induced erectile dysfunction

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In the present study, we aimed to examine the efficacy of sildenafil in patients with an antipsychotic (olanzapine)-induced erectile dysfunction (ED). The study group comprised 10 patients who experienced ED associated with the use of olanzapine. The patients initially received 50 mg sildenafil at baseline. If clinically indicated, titration up to 100 mg was permitted. All patients were assessed by Clinical Global Impression-Improvement (CGI-I) and International Index of Erectile Dysfunction (IIEF) scales at baseline and weeks 2 and 4. At final assessment, three patients were considered 'very much improved' and four 'much improved' according to CGI-I. Our results suggest that sildenafil use is effective and well-tolerated in patients with olanzapine-induced ED.
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Keywords: olanzapine; haloperidol; sildenafil; antipsychotic

Introduction

Antipsychotic agents have been widely used for various psychiatric disorders. The main neurotransmitter systems (especially serotonergic) affected by antipsychotics, even novel, atypical antipsychotics including olanzapine, may affect sexual functions. The inhibitory effect of serotonin on libido, ejaculation and orgasm by inhibiting the activity of dopamine in the central nervous system and increasing the release of prolactin is well documented.[1]

Sildenafil improves ED via selectively inhibiting cGMP-specific phosphodiesterase type 5 (PDE-5).[2] In our previous study, we found sildenafil to be considerably useful for the treatment of antidepressant-induced ED.[3] To the best of our knowledge, there has been no study concerning sildenafil use in the treatment of patients with antipsychotic-induced erectile dysfunction except case reports.[4,5] In the present study, therefore, we investigated the efficacy of sildenafil in olanzapine-induced ED.

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Method

The study group comprised ten heterosexual and married male patients who experienced ED according to Diagnostic and Statistical Manual of Mental Disorders (DSM-IV)[6] associated with the use of olanzapine. All patients gave written informed consent after complete description of the study. The study protocol was approved by the Local Ethics Committee of Firat University School of Medicine. Antipsychotic dose was stabilized at least 4 months prior to starting sildenafil.

To be able to exclude the organic sexual dysfunctions, the fasting glucose level, urine analysis, complete blood count, sex hormones and prolactin levels were obtained. Exclusion criteria were as follows: a concurrent unstable medical illness; previous or current alcohol and substance abuse or dependence; the presence of any endocrinological state; pre-existing sexual dysfunction not related to olanzapine treatment; a history of myocardial infarction within the previous 3 months; and current or expected use of nitrate derives.

All patients were individually screened using CGI-I[7] for clinical improvement and IIEF[8] for evaluating sexual desire, orgasm, intercourse satisfaction and global satisfaction other than erectile function at the beginning of the study and at weeks 2 and 4. The patients initially received 50 mg sildenafil at baseline. If clinically indicated, titration up to 100 mg was permitted according to the patient's

tolerance and clinical response. The patients and their wives were encouraged to engage in coitus twice a week.

Statistical analysis was performed using the statistical package for social sciences (SPSS/PC 9.05 version, 1998). Wilcoxon's test was used.

Results

All patients completed the study and no patient discontinued the treatment prematurely. The mean IIEF subscores at the baseline and at weeks 2 and 4 were presented in Figure 1. The mean scores of primary efficacy variables, initiating (question 3) and maintaining erection (question 4), were 1.3 ± 0.9 and 1.4 ± 1.0 at baseline, 2.7 ± 1.1 and 3.1 ± 1.4 at week 2 and 4.0 ± 1.6 and 4.3 ± 1.6 at week 4, respectively. There was statistically significant difference with respect to the mean score at week 2 compared with baseline ($P < 0.05$) and at week 4 compared with baseline ($P < 0.01$).

At the evaluation of week 2, the mean CGI-I score was 3.96 ± 0.76 whereas it was 1.32 ± 0.68 at the evaluation week 4 ($P < 0.01$). At the end point, of the patients, four (40.0%) were considered as 'very much improved' and three (30.0%) 'much improved' by CGI-I. At last assessment, of the patients with clinical improvement, all but two were receiving 50 mg sildenafil.

Sildenafil was well tolerated. The most frequent observed side effects were headache ($n = 3$) and dizziness ($n = 2$). It is worth noting that no patient discontinued because of adverse events.

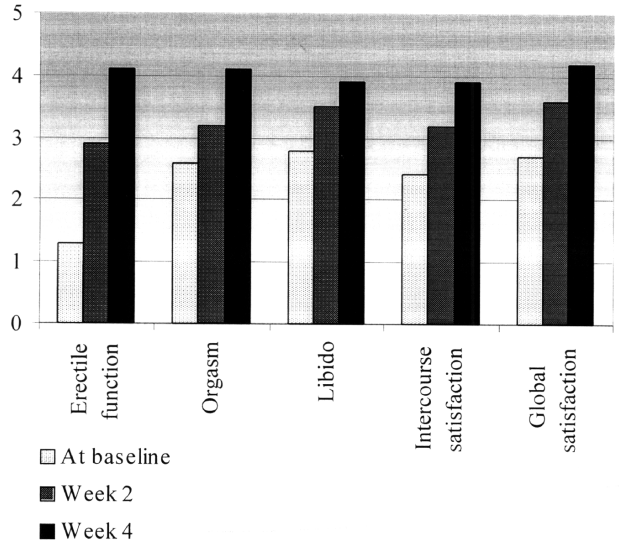

Figure 1 The mean IIEF subscores at baseline and weeks 2 and 4.

Discussion

The main result of this study was that sildenafil seems to be effective in the treatment of olanzapine-induced ED. We observed significant improvements in all domains of sexual functioning other than ED, including sexual desire, orgasm and sexual satisfaction.

Sildenafil use has been widely evaluated in patients with antidepressant-induced ED and its usefulness has been supported by case reports[9] and open label studies.[3,10] Fava *et al*.[10] found an encouraging 69% response rate to oral sildenafil in patients with antidepressant-induced sexual dysfunction. However, to the best of our knowledge, there has been no study concerning sildenafil use in the treatment of patients with antipsychotic-induced ED except case reports.[4,5] In the latter case report, a patient with paranoid schizophrenia who was unable to have sexual intercourse because of ED, associated with another typical antipsychotic, risperidone, achieved successful intercourse after taking 50 mg sildenafil. In our study, since, of the patients with clinical improvement, all but two were receiving 50 mg sildenafil at last assessment, it can be speculated that low dose of sildenafil might be adequate. The main limitations of the present study are small sample size and the lack of a placebo-controlled group. In summary, our results suggest that sildenafil may be an effective approach for patients with olanzapine-induced ED.

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