

Sexual Dysfunction in Male Schizophrenic Patients Treated with Risperidone versus Olanzapine in Bhopal Population

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Received: 25-05-2025 / Revised: 23-06-2025 / Accepted: 26-07-2025

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Conflict of interest: Nil

Abstract:

Background: It is established that antipsychotic drug administration elevates prolactin secretion, which suppresses LH and testosterone in males. Hence, two novel drugs with different affinity profiles are administered to evaluate sexual dysfunction in males.

Method: Out of 90, 45 patients were administered with risperidone, and the remaining 45 were administered with olanzapine. A simple rating scale that measures sex drive, arousal, penile erection, orgasm ability, and orgasm satisfaction. These scores range from 5 to 30. Sexual dysfunction is defined as a total score ≥ 19 or a score of > 5 on an item.

Results: Comparison of sexual dysfunction, ASEX getting and keeping an erection, and ASEX satisfaction with orgasm had a significant p-value ($p < 0.001$).

Conclusion: The present comparative study pronounces that risperidone has higher sexual dysfunction than olanzapine in male schizophrenic patients.

Keywords: Risperidone, ASEX, Sexual dysfunction, Schizophrenic, Olanzapine.

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Introduction

Schizophrenia is a severe psychotic disorder, with an onset usually in early adulthood that causes prolonged disability in the affected person.

Antipsychotic drug (APD) therapy, which must be taken throughout life, remains the cornerstone of treatment for the patient suffering with schizophrenia [1]. It is a well-established effect on hormone secretion, i.e., decreased libido and impotence occurring in a considerable proportion of male schizophrenic patients treated with traditional antipsychotic drugs [2].

In contrast, new-generation antipsychotics have variable tendencies to induce hyperprolactinemia. In males, prolactin increases LH and testosterone hormones [3]. Olanzapine has been reported to produce little significant prolactin elevation.

High prolactin levels during antipsychotic drug administration may have inhibiting effects on the pituitary gonadotrophins, but the evaluation of such potential endocrine effects has not yet been carried out [4]. Hence, an attempt is made to study the effect of the drug on the hypothalamo-pituitary-gonadal axis. We have compared the endocrine actions of the neuroleptics with different affinity

profiles of risperidone and olanzapine on reproductive hormones.

Material and Method

90 (ninety) adult schizophrenia patients who regularly visited the psychiatric OPD of RKDF Medical College, Bhopal, Madhya Pradesh were studied.

Inclusion Criteria: Married patients who are sexually active. The patients satisfying ICD-10 criteria for schizophrenia from history who are maintaining remission either on risperidone or olanzapine, as determined by the score of BPRS < 4 , and who gave their consent in writing for the study were selected.

Exclusion Criteria: Patients have comorbidities like type-II DM, hypertension, thyroid dysfunction, and peripheral vascular disease. Patients with primary sexual dysfunction and schizophrenic or mentally retarded patients who refused to give their consent for the study were excluded from the study.

Method

Out of 90 patients, 45 patients were treated with risperidone and 45 with olanzapine drugs. Socioeconomic history, alcohol or tobacco use, and current

treatment were noted from each patient. Brief Psychiatric Rating Scale (BPRS). It is a commonly used scale to evaluate the positive, negative, and affective symptoms of psychotic disorders like schizophrenia. It is divided into 18 categories, each of which is evaluated from 1 (not present) to 7 (present) (extremely severe). Remission of clinical stability is when scoring is less than 4 in all items. It is useful in documenting the efficacy of treatment.

Arizona Sexual Experience Scale (ASEX): A simple rating scale that measures sex drive, arousal, vaginal lubrication/penile erection, orgasm ability, and orgasm satisfaction. The score ranges from 5 to 30. Sexual dysfunction is defined as a total score ≥ 19 or a score of ≤ 5 on any item or ≥ 4 on three items.

The duration of the study was from January 2024 to December 2024.

Statistical Analysis: Comparison of ASEX scale scores (≥ 19 or ≥ 5) was carried out in both groups, and p-values were noted. The statistical analysis was carried out using SPSS software.

Observation and Results

Table 1:

Comparison of sexual dysfunction in both drugs in schizophrenic patients

- In the risperidone group, 32 (71.1%) have the presence of sexual dysfunction, and 13 (28.8%) have the absence of sexual dysfunction. In the olanzapine group, 21 (46.6%) had the presence and 24 (53.3%) had the absence

- of sexual dysfunction, with an X^2 value of 4.79 and $p < 0.028$ (the p-value is highly significant).
- ASEX sexual dysfunction: ≥ 19 score had 19 (42.2%), ≤ 52 (57.7%) in the risperidone group, 11 (24.2%) ≥ 19 score, and 34 (75.5%) had ≤ 19 score, X^2 , 2.26, and p-value 0.14 (p-value is insignificant).
- ASEX sexual drive: ≥ 5 score had 19 (42.2%), ≤ 5 score had 26 (57.7%) in the risperidone group, ≤ 5 score had 34 (75.5%) in the olanzapine group, $X^2 = 2.28$, and $p < 0.0132$ (p-value is insignificant).
- ASEX sexual arousal: ≥ 5 score had 17 (37.7%), ≤ 5 score had 28 (62.2%) in the risperidone group, ≥ 5 score had 9 (20%), and ≤ 5 score had 36 (80%) in the olanzapine group, $X^2 = 2.54$ and $p < 0.12$ (p-value is insignificant).
- ASEX Getting and keeping an erection: ≥ 5 score had 21 (46.5%), ≤ 5 score had 24 (59.3%) in the risperidone group; ≥ 5 score had 36 (80%), ≤ 5 score had 9 (20%) in the olanzapine group; $X^2 = 5.25$ and $p < 0.02$ (* p value is highly significant).
- ASEX Recharging orgasm: ≥ 5 score had 17 (37.7%), ≤ 5 score had 28 (62.9%) in the Risperidone group, ≥ 5 score had 9 (20%), and ≤ 5 score had 36 (80%) in the Olanzapine group, $X^2 = 2.54$ and $p < 0.12$.
- ASEX satisfaction orgasm: ≥ 5 score had 19 (42.2%), ≤ 5 score had 26 (57.7%) in the risperidone group, ≥ 5 score had 9 (20%), and ≤ 5 score had 36 (80%) in the olanzapine group, $X^2 = 4.25$ and $p < 0.028$.

Table 1: Comparison of sexual dysfunction of both drugs in schizophrenic patients

	Risperidone (45)			Olanzapine (45)		X2	p value
	No		%	No	%		
Sexual dysfunction	Present	32	71.1	21	46.6	4.79	0.028 *
	Absent	13	28.8	24	53.3		
ASEX sexual dysfunction	≥ 19	19	42.2	11	24.4	2.26	0.14
	> 19	52	57.2	34	75.5		
ASEX sexual drive	≥ 5	19	42.2	11	24.4	2.28	0.132
	≤ 5	26	57.7	34	75.5		
A Sexual arousal	> 5	17	37.7	9	20	2.54	0.12
	< 5	28	62.2	36	80		
ASEX Getting & Keeping in erection	> 5	24	59.3	9	20	5.25	0.02 *
	< 5	17	37.7	9	20		
ASEX Recharging orgasm	> 5	17	37.7	9	20	2.54	0.12
	< 5	28	62.9	36	80		
ASEX Satisfaction orgasm	> 5	19	42.2	9	20	4.25	0.028 *
	< 5	26	57.7	136	80		

*- p value is highly significant

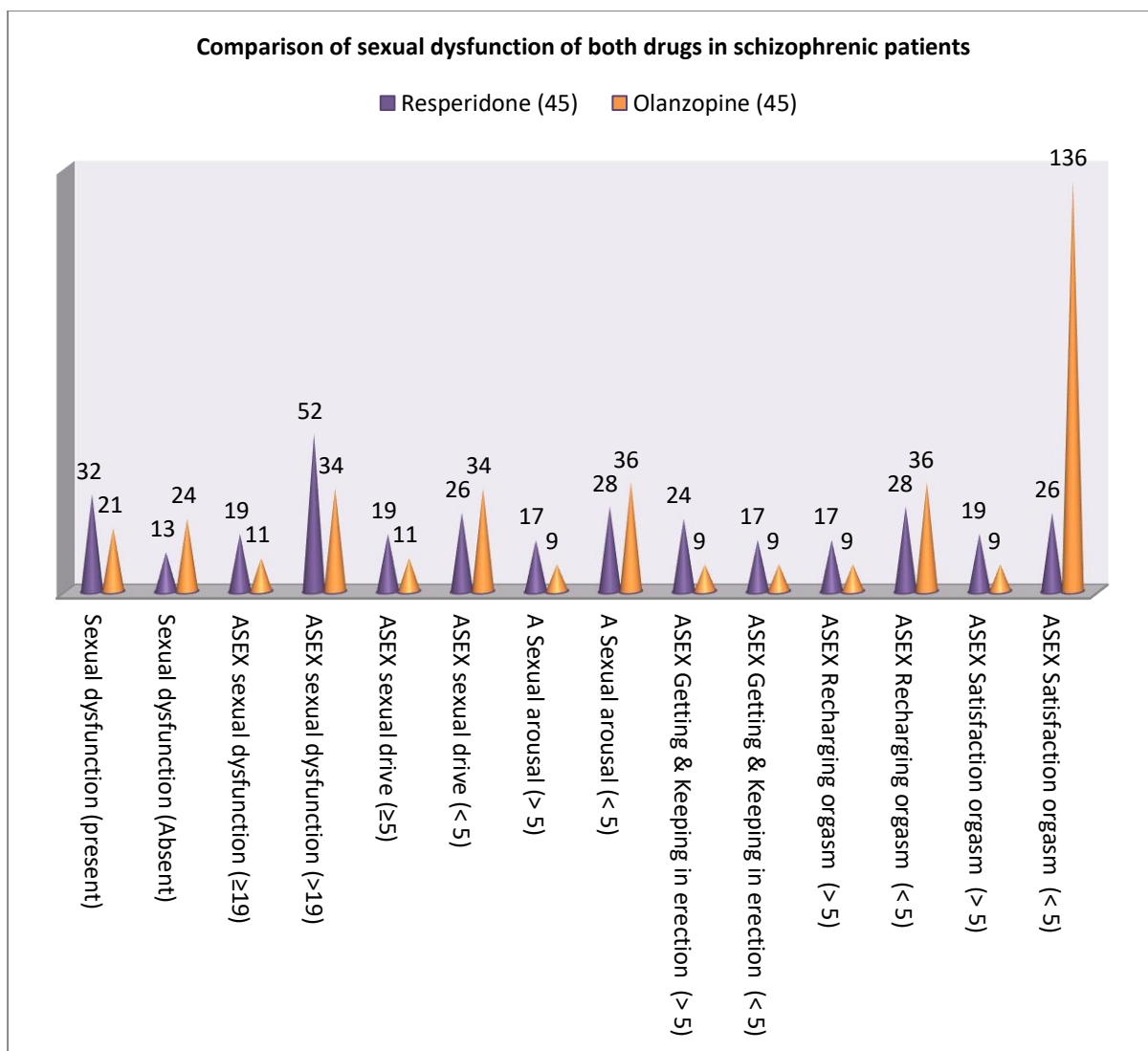


Figure 1: Comparison of sexual dysfunction of both drugs in schizophrenic patients

Discussion

The present study of sexual dysfunction in male schizophrenic patients treated with risperidone versus olanzapine study. The male schizophrenics who were married were assessed with the Arizona Sexual Experience Scale (ASEX). Sexual dysfunction, ASEX getting and keeping an erection, and ASEX satisfaction orgasm had significant p-values ($p < 0.001$). These findings are more or less in agreement with previous studies [5,6,7].

The novel antipsychotic drug risperidone elevates prolactin (PRL) and may actually produce more severe hyperprolactinemia than conventional agents. This adverse effect of risperidone is in contrast to the majority of newer atypical antipsychotic agents like olanzapine, clozapine, quetiapine, and probably also ziprasidone, which significantly lower elevation of PRL most likely due to the lower dopamine D2 binding affinities [8]. It is indicated that risperidone, results in dose-related increases of plasma prolactin.

The clinical consequences of prolonged hyperprolactinemia in men include sexual dysfunctions, such as diminished libido, decreased arousal, orgasmic problems, and impotency, and behavioral difficulties like depression, memory deficits, and worsened psychosis. Moreover, weight gain is the pronounced side effect of hyperprolactinemia [9].

Olanzapine, like risperidone, causes an early increase in serum prolactin, but with the administration of olanzapine, the PRL level is significantly lower than with risperidone. The significant lowering of PRL in olanzapine-administered patients could be due to greater specificity for dopamine pathways, which results in fewer blockades of dopamine receptors [10] in the tuber infundibular pathway. It is also reported that olanzapine has greater potency in antagonism of serotonergic relative to dopamine neurotransmission. Hence, it is well established that treatment with olanzapine is associated with fewer side effects like extrapyramidal syndrome (EPS); it includes akathisia (restless-

ness), tremors, dysphoria, and sexual dysfunction [11].

Inhibin B is a hormone, specifically a glycoprotein, involved in the regulation of reproduction in both males and females. Inhibin B production depends on both FSH and spermatogenic status.

The level of inhibin is also reported in schizophrenic male patients under treatment of antipsychotic drugs [12]; hence, spermiogenesis and spermatogenesis are severely affected, which leads to loss of libido and infertility.

Summary and Conclusion

In the present study of sexual dysfunction in male schizophrenic patients treated with Risperidone versus Olanzapine. Risperidone caused higher PRL elevation than Olanzapine treatment of this medication can be associated with disturbances in reproductive hormones testosterone and gonadotrophins (FSH) levels. FSH decline or directly cause negative effect on sertoli cells and inhibin B level. The present study demands further, hormonal, pathophysiological, genetic studies because the nature of correlation between PRL and treatment adherence remain unclear.

Limitation of study: Owing to remote location of research centre, small number of patients and lack of latest techniques we have limited finding and results. This research work was approved by the ethical committee of RKDF Medical College, Bhopal, and Madhya Pradesh-462033.

References

1. Akhondzadeh S, Rezali F: Correlation between testosterone gonadotrophins and prolactin and severity of negative symptoms in male patients with chronic schizophrenia. *Schizophr. Res. J.* 2006; 84; 405 to 410.
2. Anderson RA: Clinical studies inhibin in the adult male. *mol. Cell. Endocrinol.* 2001; 180; 109-116.
3. Baptista T, Reyes D: Antipsychotic drugs and reproductive hormones relationship to body weight regulation. *pharmacol. Biochem. Behav.* 1999; 62 (3); 409-417.
4. Cowford AM, Beasley CM: The acute and long term effect of Olanzapine compared with placebo and haloperidol on serum prolactin concentrations, *schizophr. Res.* 1997; 26; 41-59.
5. Cutler AJ: Sexual dysfunction and antipsychotic treatment, *psych neuroendocrinology J.* 2003; 28; 69-82.
6. Dickson RA, Glazer WM: Neuroepileptic: Induced hyperprolactinemia- *Schizophr. Res. J.* 1999; 35; 575-586.
7. Haddad PR, Weick A: Antipsychotic induced hyperprolactinemia mechanisms clinical features and management *Drugs J.* 2004; 64; 2291-2314.
8. Kelley DL, Conley RR: Sexuality and schizophrenia a review *schizophrenia Bull.* 2004; 30 (4); 767-779.
9. Kolb BA, Stan Czyki FZ: Serum Inhibin B levels in males with gonadal dysfunction *Fertil. Steril.* 74; 234-238.
10. MCGahuey CA, Gelenberg AJ: The Arizona sexual experience scale (ASEX) reliability and validity *J. Sex. Marital Ther.* 2000; 26; 25-40.
11. Melkersen KI, Multing AL: Dose requirement and prolactin elevation and antipsychotics in males and females patients with schizophrenia *Br. J. Clin. Pharmacol.* 2001; 51; 317-324.
12. Uçok A, Incesu C: Sexual dysfunction in patients with schizophrenia on antipsychotic medication *Eur. Psychiatry.* 2004; 22; 328-333.