Original Research Article

Empirical evaluation of olanzapine, risperidone, and trifluoperazine induced sexual dysfunction in female schizophrenic patients

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Abstract

Background: The literature has been mostly silent on one significant side-effect of antipsychotic drugs i.e. sexual dysfunction. More-so among the female patients from Asian subcontinent. Hence the present study was undertaken to assess sexual dysfunction in female schizophrenic patients while on treatment with a typical antipsychotic (trifluoperazine) and atypical antipsychotics (olanzapine and risperidone). **Methodology:** Hundred consecutive female patients of schizophrenia, either on trifluoperazine, olanzpine or risperidon were recruited for the study. Patients were enquired about their demographic details and their sexual functioning and sexual quality of life with the help of a semi-structured pro-forma, Arizona Sexual Experiences Scale (ASEX) and Sexual Quality of life questionnaire for females (SQoL-F). The data so obtained were statistically analyzed. **Results:** Of the 100 patients (n=100) recruited, 15% of the patients were enquired by doctor for the presence of sexual dysfunction. Among the patients who agreed to have had sexual problems 33.33% of the patients sought for treatment. Of the patients agreeing to have sexual dysfunction, 83.33% had poor compliance to drugs and 73.33% have disturbed relationship with their sexual partner. Olanzapine was found to be the least responsible for causing sexual dysfunction followed by risperidone and trifluoperazine. Mean SQOL-F scores of patients on olanzapine (82.38 ± 19), risperidone (63.3 ± 25.4) and trifluoperazine (40.15 ± 19.9) showed significant differences (P <0.001). **Conclusion:** The presence of sexual adverse effects are fairly common among the female subjects of schizophrenia, irrespective of which antipsychotic a patient is on. The study necessitates the need for proper and systematic evaluation of each female patient of schizophrenia who is receiving anti psychotic medications especially for those on trifluoperazine and risperidone.

Key Word: sexual dysfunction.

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INTRODUCTION

Antipsychotic drugs have become a main stay in the treatment of schizophrenia disorder. It is always stated that the atypical antipsychotics may have superior efficacy in treating negative symptoms, improving mood and cognition and preventing relapse as compared to the typical antipsychotics. However two recent and large antipsychotic effectiveness trials for treatment of schizophrenia: the United Kingdom's Cost Utility of the Latest Antipsychotic Drugs in Schizophrenia Study (CUtLASS), and the National Institute of Mental Health-initiated Clinical Antipsychotic Trials of Intervention Effectiveness (CATIE) schizophrenia trial have

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consistently shown that first-generation antipsychotics (FGAs) and second-generation antipsychotics (SGAs) are equally effective in the treatment of schizophrenia.[1] Now that, the effectiveness of both classes of antipsychotic drugs have proven to be more or less equal, the decision of psychiatrist and the patients to choose an antipsychotic drug, rests on the side-effect profile of these drugs. Researchers started to work on identifying the side-effect profile of the drugs so as to arm the treating psychiatrists and the patients in making a right choice of antipsychotics. The literature is mostly silent on one significant side-effect of antipsychotic drugs i.e. sexual dysfunction. Switching to a medication with a more appropriate risk/benefit profile is a consideration for patients in whom sexual dysfunctions are observed. Hence the present study was undertaken to assess sexual dysfunction in female schizophrenic patients while on treatment with a typical antipsychotic (trifluoperazine) and atypical antipsychotics (olanzapine and risperidone).

AIM

To compare the sexual dysfunction in female patients of schizophrenia on Olanzapine, Risperidone and Trifluoperazine.

OBJECTIVES

1. To identify the prevalence of sexual dysfunction in female patients of schizophrenia.
2. To compare the prevalence of sexual dysfunction among the female patients on Olanzapine, Risperidone and Trifluoperazine.
3. To assess the sexual quality of life of female schizophrenia patients being treated with Olanzapine, Risperidone and Trifluoperazine.
4. To correlate the impact of sexual dysfunction and sexual quality of life.

MATERIALS AND METHODS

Study area

It was a hospital based study. The study was carried out on inpatients of the psychiatry ward as well as the outpatients attending the psychiatry OPD of Mahatma Gandhi Institute of medical sciences, Sevagram.

Study design

It was a cross-sectional non-interventional, short-term, observational study. Hundred consecutive female patients, diagnosed as schizophrenia, whether admitted in the psychiatry ward or attending the psychiatry OPD, taking olanzapine, risperidone or trifluoperazine as their antipsychotic were included in this study. After obtaining the proper informed consent, the patients were enquired about their demographic details and questions were asked pertaining to their sexual functioning and sexual quality of life with the help of a semi-structured pro-forma and various scales such as Arizona Sexual Experiences Scale (ASEX)[2] and Sexual Quality of life questionnaire for females (SQoL-F)[3]. The data so obtained was statistically analyzed to identify any difference in the sexual functioning and quality of life of female patients on olanzapine, risperidone or trifluoperazine as their antipsychotic.

Inclusion criteria

We enrolled the patients fulfilling the following inclusion criteria.

1. Female patients.
2. Between 15 and 50 years of age.
3. Meeting the DSM-IV-TR criteria for the diagnosis of schizophrenia.
4. Living with a sexual partner
5. Receiving antipsychotic drug monotherapy with olanzapine risperidone or trifluoperazine for at least 6 months.
6. Patients and their guardians who could give a written informed consent.

Exclusion criteria

Patients fulfilling the following exclusion criteria were excluded from the study.

1. Patients who refused to give consent.
2. Patients on any other medications associated with sexual side effects.

OBSERVATIONS AND RESULTS

One way ANOVA was used to compare the patient characteristics *viz*. age, residence, occupation and religion between the three groups of patients receiving olanzapine, risperidone and trifluoperazine antipsychotic drugs and the difference between the two groups was found to be statistically insignificant. This implied that the groups are comparable in their socio-demographic characteristics. (Table 1) A comparison was also done regarding the duration of illness and duration of treatment characteristics of the three groups of the patients and the difference between the three groups was found to be statistically insignificant. This implied that the groups are comparable in their illness and treatment characteristics except other than the drug taken. (Table 2)

Table 1: Socio-demographic characteristics across the three groups of patients on olanzapine, risperidone and trifluoperazine.

Socio-Demographic Characteristics		Number of Patients Olanzapine (n = 37)	Risperidone (n = 30)	Trifluoperazine (n = 33)	P - value
Age (Mean ± SD)		34.62 ± 6.2	33.90 ± 5.6	34.66 ± 6.5	P >0.05
Residence	Rural	29	26	27	P >0.05
	Urban	8	4	6	
Occupation	Farmer	19	13	14	P >0.05
	Service	6	3	4	
	Home Maker	12	14	15	
Religion	Hindu	32	28	29	P >0.05
	Muslim	1	2	2	
	Buddhism	4	0	2	

Table 2: Distribution of Total duration of illness and Total duration of treatment and Dosage of antipsychotic drug given across the three groups of patients on different anti-psychotic medications.

	Antipsychotics			P – value
	Olanzapine	Risperidone	Trifluoperazine	
Total Duration of Illness (Mean ± SD)	71.91 ± 31.1 months	59.79 ± 22.36 months	65.61 ± 26.78 months	P >0.05
Total Duration of Treatment (Mean ± SD)	64.94 ± 30.38 months	53.58 ± 21.62 months	56.0 ± 29.66 months	P >0.05
Dosage of Antipsychotic Drug	11.89 ± 3.4 mg/day	7.57 ± 2.4 mg/day	10.91 ± 2.6 mg/day	Not Applicable

The patients on olanzapine were the least likely to have been enquired by the doctor about the presence of sexual problems (8.10%) where as those on risperidone were relatively most likely to have been asked for sexual problem (16.66%). Overall, considering the patients of all the three groups, only 15% of the patients were enquired about the presence of sexual problems. (Table 3) The patients on olanzapine were the least likely to report the presence of sexual problems on casual questioning (12.12%) where as those on trifluoperazine were relatively most likely to report the presence of sexual problems on casual questioning (45.45%). Overall, considering the patients of all the three groups, 30% of the patients agreed to have had sexual problems on casual questioning during the course of the illness. (Table 4) A paltry 33.33% of the patients out of the total 30 patients who had agreed to have had sexual dysfunction, sought treatment for their sexual problems. (Table 5) A whopping 83.33% of the patients out of the total 30 patients who had agreed to have had sexual dysfunction, had problem with compliance to the antipsychotic drugs due to their sexual problems. The highest problem with compliance was found in risperidone group where 90.90% of the patients reported to have had poor compliance due to the sexual problems of the medications. (Table 6) A 73.33% of the patients out of the total 30 patients, who had agreed to have had sexual dysfunction, had disturbed relationships with their sexual partners. The highest prevalence of problem with disturbed relationship was found in the risperidone group where 81.81% of the patients reported to have had a disturbed relationship with their sexual partner. (Table 7)

Table 3: Number of patients who had been enquired about the presence of sexual problems by their doctors anytime during the course of their treatment.

Sr. No.	Drug Group	Enquired by the doctor		Percentage
		Yes	No	
1.	Olanzapine (n=37)	3	34	8.10%
2.	Risperidone (n=30)	5	25	16.66%
3.	Trifluoperazine (n=33)	5	28	15.15%
	Total	15	85	15%

Table 4: Number of patients who felt that they did have some sexual problems anytime during the course of the treatment

Sr. No.	Drug Group	Admitted to have had sexual problems		Percentage
		Yes	No	
1.	Olanzapine (n=37)	4	33	12.12%
2.	Risperidone (n=30)	11	19	31.42%
3.	Trifluoperazine (n=33)	15	18	45.45%
	Total	30	70	30%

Table 5: Treatment sought for sexual dysfunction

Sr. No.	Drug Group	Number of patients admitted to have had sexual problems	Sought any treatment		Percentage
			Yes	No	
1.	Olanzapine (n=37)	4	1	3	25%
2.	Risperidone (n=30)	11	4	7	36.36%
3.	Trifluoperazine (n=33)	15	5	10	33.33%
	Total	30	10	20	33.33%

Table 6: Sexual Problems leading to problem with compliance to the drugs

Sr. No.	Drug Group	Number of patients admitted to have had sexual problems	Problems with compliance to the drugs		%
			Yes	No	
1.	Olanzapine (n=37)	4	3	1	75%
2.	Risperidone (n=30)	11	10	1	90.90%
3.	Trifluoperazine (n=33)	15	12	3	80%
	Total	30	25	5	83.33%

Table 7: Sexual Problem leading to disturbed relationship with sexual partner

Sr. No.	Drug Group	Number of patients admitted to have had sexual problems	Disturbed relationship with sexual partner		%
			Yes	No	
1.	Olanzapine (n=37)	4	2	2	50%
2.	Risperidone (n=30)	11	9	2	81.81%
3.	Trifluoperazine (n=33)	15	11	4	73.33%
	Total	30	22	8	73.33%

A 51% of the patients out of the total 30 patients were found to have had sexual dysfunction when identified objectively using ASEX questionnaire. The highest prevalence of sexual dysfunction was found in the trifluoperazine group (81.81%) where as the least was found in the olanzapine group (21.62 %). (Table 8) The number of patients having sexual dysfunction rose from 4 patients to 8 patients in the olanzapine group, 11patients to 16 patients in risperidone group and 15 patients to 27 patients in trifluoperazine group. In all 41.47% patients having sexual dysfunction were missed out by casual questioning about sexual dysfunction. (Table 9) Using one way ANOVA , the difference among the mean ASEX scores of all the three drug groups was found to be statistically significant ($P < 0.001$, $df = 2$, $F=32.137$). Further in the post-hoc Tukeys HSD test, the difference of mean ASEX scores between all the three pairs of drug groups was also found to be significant individually ($P<0.01$). (Table 10) Using one way ANOVA , the difference among the mean SQOL-F scores of all the three drug groups was found to be statistically significant ($P < 0.001$, $df = 2$, $F=33.81$). Further in the post-hoc Tukeys HSD test, the difference of mean SQOL-F scores between all the three pairs of drug groups was also found to be significant individually ($P<0.01$).(Table 11)

Table 8: Patients having sexual dysfunction identified using ASEX

Sr. No.	Drug Group	Patients having sexual dysfunction		Percentage
		Yes	No	
1.	Olanzapine (n=37)	8	29	21.62%
2.	Risperidone (n=30)	16	14	53.33%
3.	Trifluoperazine (n=33)	27	6	81.81%
	Total	51	49	51%

Table 9: Difference between the subjectively admitted and objectively identified patients having sexual dysfunction

Sr. No.	Drug Group	Patients having sexual dysfunction		Difference	%
		Subjectively Admitted	Objectively Identified		
1.	Olanzapine (n=37)	4	8	4	50%
2.	Risperidone (n=30)	11	16	5	31.25%
3.	Trifluoperazine (n=33)	15	27	12	44.44%
	Total	30	51	21	41.17%

Table 10: Arizona Sexual Experience Scale (ASEX) scores of the patients in the three drug groups

Sr. No.	Drug Group	ASEX Score (Mean ± SD)	P- Value	TUKEY'S HSD TEST
1.	Olanzapine (n=37)	11.83 ± 5.3 (M1)	P < 0.001 df = 2 F = 32.137	M1 vs M2 P<.01 M1 vs M3 P<.01 M2 vs M3 P<.01
2.	Risperidone (n=30)	17.33 ± 7.0 (M2)		
3.	Trifluoperazine (n=33)	22.69 ± 4.5 (M3)		

Table 11: Sexual Quality of Life - female (SQOL-F) scores of the patients in the three drug groups

Sr. No.	Drug Group	SQOL-F Score (Mean ± SD)	P- Value	TUKEY'S HSD TEST
1.	Olanzapine (n=37)	82.38 ± 19 (M1)	P < 0.001 df = 2 F = 33.81	M1 vs M2 P<.01 M1 vs M3 P<.01 M2 vs M3 P<.01
2.	Risperidone (n=30)	63.3 ± 25.4 (M2)		
3.	Trifluoperazine (n=33)	40.15 ± 19.9 (M3)		

DISCUSSION

Some studies have proved that second generation antipsychotic drugs are better with respect to causing sexual dysfunction as compared to the first generation antipsychotics.[4,5,6] However certain studies have proven the contrary or at-least have stated that there is no significant difference between the two classes. [7,8,9] Further such studies are very scarcely done in the Indian subcontinent, more so among the female patients. While assessing the number of patients who agreed to have been enquired by a doctor about the presence of sexual problem any time during the course of their illness, it was found that only 15% of the patients were enquired so by the doctors. The doctors seemed to be least bothered about the presence of sexual problems among the patients on olanzapine where in only 8.10% of the patients were enquired. The popular belief that olanzapine causes the least extra pyramidal side-effects as compared to other contemporary antipsychotics could have discouraged the doctors to enquire about the presence of sexual problems in this group. However recent research suggests that even olanzapine can cause significant sexual dysfunction.[3] In our study as well 21.62% of patients on olanzapine were identified to have sexual dysfunction on ASEX questionnaire. This necessitates the need to be alert about the possibility of sexual dysfunction while treating the patients with olanzapine and enquire about the same during the course of treatment. In the risperidone and trifluoperazine group, only 16.66% and 15.15% of the patients respectively agreed to have been enquired by their doctors about the presence of sexual problems. This data displays the fact that a very few psychiatrists are actually sensitive to the need for proper sexual functioning of the patients of schizophrenia. Among the patients who agreed to have had sexual problems during the course of their treatment with anti-psychotic only 33.33% of the patients sought for some kind of treatment. The commonest mode of treatment given by the doctor was reduction in the dosage of antipsychotics taken followed next by the switching of antipsychotics to a drug which was considered more safe for sexual side-effects. This facts highlights that even though a portion of the patients were aware of themselves of sexual disorder, only a small percentage of them actually sought treatment for the sexual problems. This highlights the fact that even the patients of schizophrenia are not comfortable discussing the aspects pertaining to sexuality with their treating psychiatrists and again it's the responsibility of the treating psychiatrists to take a lead in discussing and treating these issues.[10].In our study we also came to know that among the patients taking anti-psychotics, 83.33% of the patients who had agreed to have had sexual problems also agreed that the sexual problems was leading to their poor compliance with the drugs. Similar concerns were also voiced by two other researchers in the past.[11,12]. Similarly, 73.33% of the patients who had agreed to have had sexual problems also agreed that they are having a disturbed relationship with their sexual partners cause of the sexual problems. This further states the need for proper training of mental health professionals towards enquiring about sexual problems from patients of severe mental illness.[13]Most of the time the only thing a psychiatrist will do is causally ask about the sexual problems. However in our study we found that the actually diagnosis of sexual disorders increases by 41.17% when the patients are enquired in detail about their sexual functioning using ASEX scale as compared to asking casually about the presence of sexual problems. While asking for sexual complains patient may just focus on one of the domains where-as while evaluating systematically using ASEX questionnaire we tend to evaluate the patient using 5 different domains i.e. sex

drive, arousal, vaginal lubrication, ability to reach orgasm, and satisfaction from orgasm, assuring that the assessment is all inclusive as well as comprehensive.[14]Olanzapine was found to be the least responsible for causing sexual dysfunction followed by risperidone and trifluoperazine was found to be the most notorious to cause sexual dysfunction. Post-hoc Tukey's HSD test was done to evaluate the individual groups and it was found that all the three groups differ from each other individually as well. (P<0.01) Similarly while assessing the Sexual Quality of Life using SQOL-Female scale using one way ANOVA, mean SQOL-F scores of patients on olanzapine (82.38±19), risperidone (63.3±25.4) and trifluoperazine (40.15±19.9), it was found that the difference between the SQOL-F of the patients on three different groups was found to be statistically significant (P <0.001). The olanzapine was found to be the least responsible for causing impaired sexual quality of life followed by risperidone and trifluoperazine which was found to have had highest impact on the sexual quality of life. Post-hoc Tukey's HSD test was done to evaluate the individual groups and it was found that all the three groups differ from each other individually as well. (P<0.01) The results of ASEX scores and SQOL-F scores consistently showed that, among the three drug groups studied, sexual functioning was generally the worst among the patients on trifluoperazine. It was relatively better among the patients on olanzapine followed by those on risperidone.

CONCLUSION

In our study we found the presence of sexual adverse effects are fairly common among the female subjects of schizophrenia, irrespective of which antipsychotic a patient is on. Most of the patients have never been enquired about the presence of sexual adverse effects by their doctors. Even if the patients agree to having had sexual dysfunction, a very few of them actually seek treatment. Presence of sexual dysfunction creates obvious hurdles with the compliance to the drugs and also creates disturbed relationships with their sexual partners. Objective evaluation of the patients using ASEX questionnaire identified a greater number of patients having sexual dysfunctions as compared to the casual questioning about the presence of sexual dysfunction. Among the female patients on three study drugs, trifluoperazine was the most responsible for causing sexual adverse effects followed by risperidone and olanzapine. Also the sexual quality of life was also the worst for the female patients on trifluoperazine followed by risperidone and olanzapine. The study necessitates the need for proper and systematic evaluation of each and every female patient of schizophrenia who is receiving anti psychotic medications especially for those on trifluoperazine and risperidone.

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