ORIGINAL ARTICLE ASIAN JOURNAL OF MEDICAL SCIENCES

A comparative study of sexual dysfunction in clinically stable schizophrenic patients receiving trifluoperazine, risperidone, and olanzapine

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Submission: 04-01-2023 Revision: 02-04-2023 Publication: 01-05-2023

ABSTRACT

Background: Sexual dysfunction (SD) is a common occurrence in Schizophrenia on antipsychotics, both typical and atypical. Indian studies in this regard are not many in number. **Aims and Objectives:** The aims of this study were to investigate SD in Schizophrenics on Trifluoperazine, Risperidone, and Olanzapine and also to evaluate the incidence of SD in relation to the duration of illness, duration of treatment, and dosage of the drugs in each group of subjects. **Materials and Methods:** In stable schizophrenic patients, on Trifluoperazine (n = 40), Risperidone (n = 40), and Olanzapine (n = 40), SD was assessed using Arizona sexual experience scale. Demographic profile and duration of illness, duration of treatment and drug dosage were evaluated in each group. Comparisons were made between the incidence of SD between patients taking typical and atypical antipsychotics. Furthermore, distribution of SD with duration of illness, duration of treatment and dose of drugs were assessed in each group of subjects (taking Trifluoperazine, Risperidone, or Olanzapine). **Results:** (1) Majority of the subjects were males (66.67%) and above 30 years (55%). (2) Incidence of SD was higher with typical antipsychotics (statistically insignificant). (3) Increased duration of treatment and dose of drugs was associated with higher incidence of SD. Patients treated with Risperidone for longer duration and with Trifluoperazine with higher dose had higher incidence of SD ($P < 0.05$). **Conclusion:** Incidence of SD is higher in older age groups and with typical Antipsychotics. Increased duration of illness, duration of treatment and higher drug doses, all are associated with higher incidence of SD.

Key words: Schizophrenia; Sexual dysfunction; Antipsychotic; Erectile dysfunction; Typical and atypical antipsychotic

Access this article online

Website: http://nepjol.info/index.php/AJMS

DOI: 10.3126/ajms.v14i5.51111

E-ISSN: 2091-0576

P-ISSN: 2467-9100

INTRODUCTION

Sexual dysfunction (SD) are a group of related disorders, typically characterized by a disturbance in a patient's ability to respond sexually or to experience sexual pleasure.[1] The prevalence is approximately 40% in men, erectile dysfunction (ED) being the most common and in 19–50% in women.[2,3] Both typical and atypical antipsychotics used in the treatment of schizophrenia may result in SD in a significant proportion of patients. This may affect their lives adversely by interfering with their self-esteem, causing trouble for their sexual partners, and compromising their quality of life and treatment compliance.[4]

Therefore, assessing SD in patients with Schizophrenia treated with antipsychotics is an important task, though many factors make it difficult including selection of patients, procedures for assessment of sexual function, subjective versus objective assessment or gender differences. Most of the studies, despite limitations and biases, have agreed

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that the prevalence of SD in Schizophrenic patients treated with antipsychotics range from 25% to 60%.[5,6]

Antipsychotic-induced SD may present as loss of libido, ED, or ejaculatory failure in men and in women it includes menstrual disturbances, vaginal dryness, and orgasmic dysfunction.[7]

The large majority of studies concerning antipsychotic induced SD are small cross-sectional or small-scale observational studies.[8]

A large prospective cohort study shows 71% of men and women taking Haloperidol, a typical antipsychotic, over 12-months complained of SD.[9]

Risperidone, an atypical antipsychotic, has a high probability of serum prolactin elevation which may result in various SD of both men and women.[10]

Olanzapine, another atypical antipsychotic, produces a low incidence of SD in men compared to Risperidone treated counterparts.[11]

Although many studies have looked into SD due to typical antipsychotics and also have compared typical and atypical antipsychotics in this regard, only few studies compared different atypical antipsychotics for SD.[12]

Aims and objectives

The aims of this study are –

1. To assess the incidence of SD in clinically stable patients with Schizophrenia taking typical (Trifluoperazine) and Atypical (Risperidone and Olanzapine) antipsychotics
2. To compare the incidents of SD between patients taking typical and those taking atypical antipsychotics.

MATERIALS AND METHODS

A hospital-based cross-sectional study was conducted in the Department of Psychiatry, North Bengal Medical College and Hospital (NBMCH) from July 2020 to June 2021. It involved a total of 120 patients of Schizophrenia, divided into three groups, each consisting of 40 patients. Each group was on single antipsychotic, namely, Trifluoperazine, Risperidone or Olanzapine on a regular basis (for at least 6 months before the study). Both male (n=80) and female (n=40) patients between 18 and 40 years who were sexually active were included in the study. Informed consent was obtained from each subject.

Patients with comorbid medical illness, comorbid psychiatric illness, SD before the intake of antipsychotics concerned, taking substances or on combination antipsychotics or anti-psychotics other than the above-mentioned three drugs were excluded from the study.

After getting approval of Institutional Ethical Committee, data collection was started on the basis of individual (one to one) interview. Clinicodemographic data were collected using a predesigned pro forma.

The diagnostic and Statistical Manual of Mental Disorders, fifth edition (DSM-5).[13] was used to diagnose schizophrenia. Brief psychiatric rating scale.[14] was used to assess the nature of symptoms (positive, negative or affective) of the subjects. A 7-point Likert scale which describes symptoms severity from not present to extremely severe (1–7), of different domains was employed. In the present study, subjects were chosen with a score of only one in each domain, the total score not >24 for each patient.

Arizona sexual experience scale (ASEX)[15] encompassing 5 items, namely, sexual drive, arousal, penile erection, vaginal lubrication, ability to reach orgasm and satisfaction with orgasm was employed to assess the SD of the subjects. 5-items, rated on a 6-point scale ranging from 1 (hyperfunction) through 6 (hypofunction) provide a total score ranging from 5 to 30. A total score >18 or a score >5 on any single item or any 3 items with individual scores >4 – indicates SD. ASEX can be completed in 5 min and was designed for self or clinician administration. Scoring for SD was done by ASEX after 6 months of treatment. Anonymity and confidentiality were maintained.

Demographic profile and duration of illness, duration of drug treatment and drug dosage were evaluated in each group. Comparisons were made between the incidence of SD between patients taking typical and atypical antipsychotics. Furthermore, distribution of SD with duration of illness, duration of treatment and dose of drugs were assessed in each group of subjects (taking Trifluoperazine, Risperidone, or Olanzapine).

Statistical analysis

Collected data of 120 study subjects were checked for consistency and completeness and entered in Microsoft Excel data sheet for analysis. Data were analyzed by IBM Statistical Package for the Social Sciences version 22 (SPSS v22). They were organized and presented applying the principles of descriptive statistics in the form of frequency and percentage and also in tables and diagrams.

Chi-square test was applied as test of significance for categorical variables and significance level was set at $P<0.05$.

Table 1: Distribution of study participants according to sexual dysfunction status with age group (n=120)

Age group (years)	Sexual dysfunction (%)		Total (%)	Chi-square	P-value
	Present (%)	Absent (%)			
<20	7 (22.60)	24 (77.40)	31 (100)	23.237	0.000*
20–30	14 (60.90)	9 (39.10)	23 (100)		
>30	49 (74.20)	17 (25.80)	66 (100)		
Total	70 (58.3)	50 (41.7)	120 (100)		

df=2, *P*<0.05, Significant

Table 2: Distribution of sexual dysfunction with duration of illness in patients treated with trifluoperazine, olanzapine, and risperidone

Antipsychotics	Duration of illness (Years)	Sexual dysfunction		Total (%)	Chi-square	P-value
		Present (%)	Absent (%)			
Trifluoperazine	<1	14 (66.7)	7 (33.3)	21 (100)	1.447	0.485
	1–5	11 (68.8)	5 (31.3)	16 (100)		
	6–10	1 (33.3)	2 (66.7)	3 (100)		
	Total	26 (65)	14 (35)	40 (100)		
Olanzapine	<1	7 (50)	7 (50)	14 (100)	0.243	0.886
	1–5	7 (41.2)	10 (58.8)	17 (100)		
	6–10	4 (44.4)	5 (55.6)	9 (100)		
	Total	18 (45)	22 (55)	40 (100)		
Risperidone	<1	11 (57.9)	8 (42.1)	19 (100)	0.96	0.619
	1–5	9 (75)	3 (25)	12 (100)		
	6–10	6 (66.7)	3 (33.3)	9 (100)		
	Total	26 (65)	14 (35)	40 (100)		

df: 2

Table 3: Distribution of sexual dysfunction with duration of treatment in patients treated with trifluoperazine, olanzapine, and risperidone

Antipsychotics	Duration of treatment (years)	Sexual dysfunction (%)		Total (%)	Chi-square	P-value
		Present (%)	Absent (%)			
Trifluoperazine	<1	14 (63.6)	8 (36.4)	22 (100)	0.04	0.842
	1–5	12 (66.7)	6 (33.3)	18 (100)		
	Total	26 (65)	14 (35)	40 (100)		
Olanzapine	<1	9 (50)	9 (50)	18 (100)	0.494	0.781
	1–5	7 (38.9)	11 (61.1)	18 (100)		
	6–10	2 (50)	2 (50)	4 (100)		
	Total	18 (45)	22 (55)	40 (100)		
Risperidone	<1	10 (43.5)	13 (56.5)	23 (100)	11.199	0.004*
	1–5	9 (90)	1 (10)	10 (100)		
	6–10	7 (100)	0 (0)	7 (100)		
	Total	26 (65)	14 (35)	40 (100)		

*P<0.05, Significant

RESULTS

Table 1 depicts that, proportion of SD was much higher among subjects aged more than 30 years (74.2%), followed by subjects aged in between 20 and 30 years (60.9%). This finding was statistically significant (<0.05).

DISCUSSION

The present study was conducted to detect and compare the SD in 120 clinically stable schizophrenic subjects taking typical and atypical antipsychotics.

Majority (55%) of the participants belonged to the age group above 30 years, followed by below 20-years age group (25.8%). 2/3rd of the participants were males. This was in contrast to a study by Hocaoglu et al.,[16] in Turkey where it was found that female participants with schizophrenia had significantly higher rate of SD. This may be due to overrepresentation of male patients in our study and also to reluctance of the female subjects to express their sexual problems at outpatient department.

Table 1 shows that SD was present in overall 58.3% of subjects. This is in concordance with a systematic review by Dumontaud et al., where its prevalence was between 30 and 82%.[17]

Table 4: Distribution of sexual dysfunction with dosage of antipsychotics in patients treated with trifluoperazine, olanzapine, and risperidone

Antipsychotic	Dose category (mg/day)	Sexual dysfunction (%)		Total (%)	Chi-square	P-value
		Present (%)	Absent (%)			
Trifluoperazine	≤5	5 (35.7)	9 (64.3)	14 (100)	8.12	0.004*
	>5–10	21 (80.8)	5 (19.2)	26 (100)		
	Total	26 (65)	14 (35)	40 (100)		
Olanzapine	≤5	1 (25)	3 (75)	4 (100)	0.732	0.693
	>5–10	15 (46.9)	17 (53.1)	32 (100)		
	>10	2 (50)	2 (50)	4 (100)		
	Total	18 (45)	22 (55)	40 (100)		
Risperidone	<2	3 (37.5)	5 (62.5)	8 (100)	3.344	0.188
	2–4	20 (71.4)	8 (28.6)	28 (100)		
	>4	3 (75)	1 (25)	4 (100)		
	Total	26 (65)	14 (35)	40 (100)		

*P<0.05, Significant

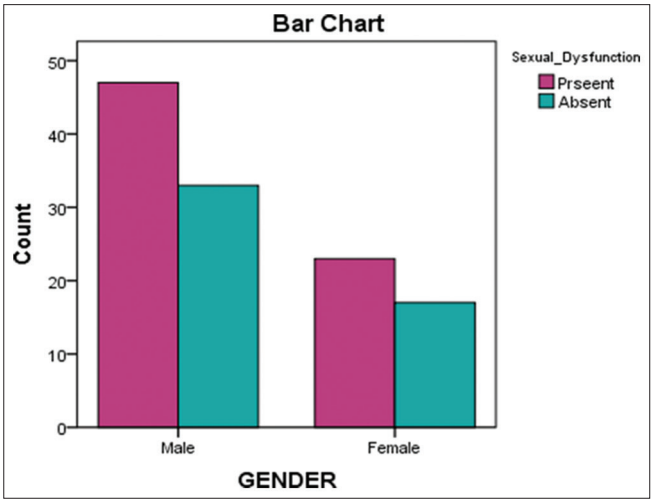

Figure 1: Distribution of sexual dysfunction with gender

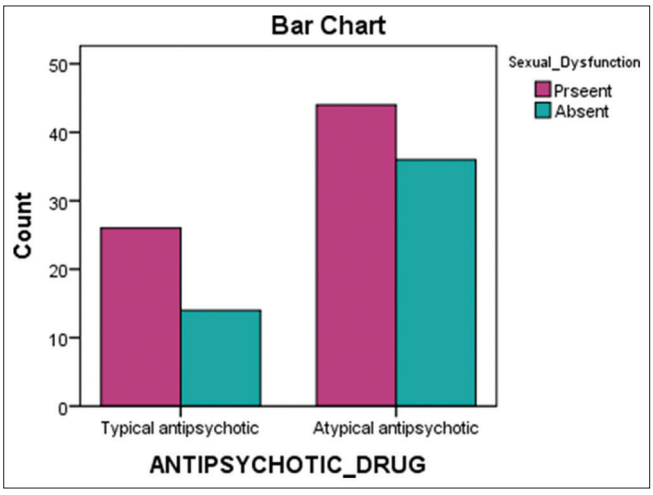

Figure 2: Distribution of the subjects according to sexual dysfunction status with type of antipsychotics used

Table 4 shows that Occurrence of SD was least in subjects on Olanzapine (45%) and most among subjects on Trifluoperazine and Risperidone (65% each). A study by Nebhinani et al. showed that rate of SD was highest with Risperidone followed by Trifluoperazine and Olanzapine.[18]

Our study shows statistically insignificant higher incidence of SD with typical antipsychotics (Figure 2). This finding supports the results of another Indian study by Nagaraj et al., where ED was higher in male patients (Figure 1) or typical antipsychotics in a statistically significant manner.[19] However, "Nithsdale schizophrenia Survey 24" found almost similar frequency of SD in both the groups (i.e., typical and antipsychotics).[20]

As shown in Tables 2-4, In our subjects on Trifluoperazine, no significant correlation was found between SD and duration of illness and duration of treatment. In the same group, statistically significant higher proportion of SD was found in subjects on a dose >5 mg/day.

In the subjects treated with Olanzapine, SD was not related to duration of illness, duration of treatment and drug dosage (Tables 2-4). These findings are in concordance with other studies.[17,21]

In the subjects treated with Risperidone, SD was not related to duration of illness and drug dosage (Tables 2 and 3). However, statistically significant higher proportion of SD was found in those with a treatment duration between 6 and 10 years (Table 4). These findings are supported by other studies.[17,21]

Limitations of the study

1. Population size of the study was small and time-period was short. Long-term prospective studies with large study population are necessary in this regard
2. We were not able to follow-up patients to observe their worsening or improvement.

CONCLUSION

1. Majority of the study participants belonged to age group more than 30 years (55%) followed by that <20 years (25.80%). 2/3rd (66.67%) of participants were male
2. Proportion of SD was higher in subjects treated with typical antipsychotics (not statistically significant)
3. Increased duration of illness, duration of treatment and drug dosage, all are associated with higher incidence of SD
4. In the duration of treatment group, increased incidence of SD was found in subjects treated with Risperidone for longer duration (statistically significant – P<0.05)
5. In the dose categorization group – increased incidence of SD was associated with higher doses of Trifluoperazine (statistically significant – P<0.05).

ACKNOWLEDGMENT

We thank our college and hospital authorities of NBMC and H, Darjeeling for their kind cooperation, especially thank Dr. Nirmal Kumar Bera, Professor and HOD, Department of Psychiatry, NBMC and H, Siliguri for overall supervision of the study. We thank all the individuals taking part in the study, without their cooperation the study would not have been possible.

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RKT - Data collection and literature review; **DPC -** Concept and design of the study; **NKB -** Revision of the manuscript; **MM -** Statistical analysis, manuscript preparation, and correspondence.

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Source of Support: Nil, **Conflicts of Interest:** None declared.