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A Study of Sexual Dysfunction Involving Risperidone

KEYWORDS: risperidone, schizophrenia, sexual dysfunction

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ABSTRACT *Background: sexual dysfunction has been a major problem with newer antipsychotics. There are only a few studies that have compared different atypical antipsychotic agents regarding sexual dysfunction. We have not come across any data in this area on Indian population.*

Aims: To determine the frequency of sexual dysfunction associated with risperidone, among patients with clinically stable schizophrenia.

Settings and Design: It is a hospital-based study. The subjects were recruited for the study by the purposive sampling technique.

Materials and Methods: Sample consisting of 25 in the risperidone group, 30 healthy volunteers. A Brief Psychiatric Rating Scale and Sexual Functioning Questionnaire (SFQ) were administered. The Kruskal Wallis test was used to compare the variables in the demographic data and the mean chlorpromazine equivalent doses of the study groups. To analyze the sexual dysfunction, the mean scores on all the domains of sexual functioning in SFQ were compared across the study groups using the Chi square test, for proportions.

Results and Conclusion: Twenty-three percent of the healthy volunteers had some impairment in one or more domains of sexual functioning. For the medication group this was 96 for risperidone,.

INTRODUCTION

Sexual function is the physiological capacity to experience desire, arousal, and orgasm. Sexual dysfunction can result from a wide variety of psychological and physical causes. Among drugs, antihypertensives, diuretics, antihistamines, antidepressants, benzodiazepines, and antipsychotics are the common agents associated with sexual dysfunction. Schizophrenic patients can develop sexual dysfunction that may not be related to drugs. Studies have shown that a majority of untreated schizophrenic patients have a reduced desire for sex, more in females as compared to males, although arousal and ejaculatory functions remain relatively intact. The schizophrenic men often limit their sexual activity to masturbation, as the negative symptoms limit their ability to maintain relationships.[2] However, while on treatment, they may experience erectile dysfunction and orgasmic difficulties as adverse effects of the medicines, that is, antipsychotics, unless they have no primary organic pathology or comorbid medical conditions contributing to the sexual dysfunction.[3,4] Thus, the major impact on sexual functioning in schizophrenic patients is by antipsychotics.

MATERIALS AND METHODS

The study sample was taken from the Psychiatry OutpatientDepartment and it consisted of 25 patients with clinicallystable schizophrenia meeting the ICD-10 criteria; as well as30 healthy volunteers from among the staff of the hospitaland caregivers of patients who were willing to participate inthe study. This is a hospital-based study. After obtaining the local ethical committee clearance, the subjects were recruited for the study by the purposive sampling technique during July 2014 to March 2015. The sample (N 5 102) was divided into four groups [Table 1]. Group one (G_1) consisted of 25 patients on risperidone, and group two(G2) had30 healthy volunteers. The drug was not administeredfor the purpose of the study. The patients, who weremaintaining remission on this drug, taken in the oral form (tablets), were enrolled into the study during their regular follow up, after their written consent. Study-related assessments were done on the same day of selecting the patients for the study.

The sample consisted of male patients between 18-50 yearsof age, sexually active (not abstinent) and on regulartreatment with a stable dose of risperidonefor at least six weeks after achieving clinicalstability. Female patients were not included in the studyas the types of questions in the SFQ were not suitable forthe conservative female population of this locality or fortheir cooperation to answer them. Remission was definedby a score of less than 4 on all items of BPRS.[12] Patientshaving other comorbid medical and psychiatric illnessesas well as primary sexual dysfunction were not included. Furthermore, those on more than one antipsychotic drug orother drugs affecting sexual function, like benzodiazepines,antidepressants, and antihypertensives were also notincluded. The only allowed medication along with theabove-mentioned antipsychotics was trihexyphenidyl, givento control extrapyramidal side effects.

The sociodemographic and clinical information sheet, BPRS, and SFQ[6] were the tools used for assessing the patients. TheSFQ was the modified version of a questionnaire used by Burkeet al.[13]. The SFQ askeddetailed questions about the physical aspects of sexualfunctioning including libido, physical arousal, masturbation,orgasm (including painful orgasm), and ejaculation. It hadbeen further modified so that it had subscales for the differentareas of sexual functioning. It was not necessary for the subjectto have a partner in order to complete it. The scale, thoughnot tested adequately for validity, had good

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reliability:Cronbach's a 5 0.90; Guttman's split-half reliability 5 0.86.For the purpose of statistical analysis, an arbitrary cut offpoint of one standard deviation above the mean was takenas the threshold above which sexual dysfunction was said tobe present. Taking that into consideration, the subscales of the questionnaire served as continuous variables, which were studied across the study groups.

Table 1: Subtype of schizophrenia

Study Paranoid Hebephrenic Catatonic Undifferentiated Unspecified groups

G_1 1 4 2 1 7 1

G_1 5 Risperidone group;

Patients with clinically stable schizophrenia, as per ICD-10 criteria, attending the Department of Psychiatry were interviewed after taking informed consent. After collecting the required sociodemographic and clinical data from the patients, they were rated on BPRS, to rule out any active psychopathology. Subsequently, they were rated on the SFQ to determine the dysfunction in the phases of desire, arousal, and orgasm. Healthy volunteers who were medically fit and not on any medication were asked to fill a sociodemographic data sheet as well as sexual functioning questionnaire. This data from healthy volunteers was collected for statistical purposes, to set a normal mean score on SFQ.

Statistical analysis

The statistical analysis of data was performed using SPSS for Windows (version 12.0) and Microsoft Excel.

Descriptive statistics were applied to obtain the means and frequencies of sociodemographic and clinical data of the sample.

To analyze the sexual dysfunction, the mean scores of the sexual functioning questionnaire on the domains of desire, arousal/erection, orgasm/ejaculation, and overall sexual impairment was obtained. The SFQ is designed such that the higher the score, more severe is the sexual dysfunction. An arbitrary cut off point of 1 SD above the mean score of healthy volunteers (G2) was taken as the threshold above which sexual dysfunction was said to be present. The mean scores of the domains were compared across the study groups using the Chi square test, as proportions and level of significance were calculated from this.

RESULTS

The groups were evenly matched with respect to key clinical variables, such as, age, duration of illness, duration of clinical stability, and treatment duration as shown in Tables 2 and 3 A majority of them were educated above higher secondary school. Illiterates constituted 7.8%. The occupation of most of the study subjects was agricultural farming (26.5%) and the family income of most of them (28.4%) was in the range of Rs 2000-3000 per month. Two-thirds of the subjects were from extended families and the same proportion was married. A majority of them had received the diagnosis of paranoid schizophrenia (62.5%).

It was important to look for the normality of distributionof data on the SFQ, before applying for the statisticaltests. This was analyzed by applying the Kolmogorov- Smirnov test. It was found that a majority of the variableswere not normally distributed. The scores for desire in therisperidone group and the overall sexualdysfunction scores for the risperidone, healthy volunteer groups followed a normal distribution,but not the remaining majority of items. This is shown inTable 4. Thus nonparametric tests were applied to analyze the sexual dysfunction. As only clinically stable patients were selected, their scores on BPRS were not compared

statistically. The mean (SD) daily dose of the drug was found to be 5.2 (1.65) mg for risperidone,

Their mean (SD) chlorpromazine equivalent doses was260.00 (82.60) mg for risperidone. The chlorpromazine equivalent doses of the drug was compared using the Kruskal Wallis test, as the data here was also not normally distributed. This data is shared in Table 5.

Table 2: The continuous demographic and clinical variables across the two groups

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Variables		Mean 6 SD
	G_1(n 5 25)	G2 (n 5 30)
Age (yrs)	28.58 6 7.60	30.23 6 7.91
Years of education	8.64 6 4.39	12.13 6 4.47
Duration of illness (months)	66.80 6 58.46	NA
Clinically stable (months)	10.12 6 11.05	NA
Duration of treatment	6.83 6 5.87	NA

NA 5 Not applicable; G_1 5 Risperidone group; G_2 5 Healthy volunteers

Table 3: The sociodemographic and clinical variables.

Variables	Mean ranks	
	G1 (n =25	P
Age	34.98	0.822
Years of education	34.28	0.636
Occupation	33.46	0.650
Income	38.22	0.777
Family type	34.60	0.664
Mother tongue	34.10	0.579
Marriage	36.48	0.831
Domicile	38.10	0.100
Religion	37.94	0.753
Duration of illness	34.62	0.852
Duration of clinical stability	40.28	0.515
Duration of treatment	34.78	0.871

Kruskal wallis test , P = NS

Volume : 5 | Issue : 6 | June 2015 | ISSN - 2249-555X

Table 4: Test of normality on sexual functioning questionnaire scores.

Items on Scale	Study groups	P
Desire	G1 (N = 25) G2 (N = 30)	0.156 0.042
Arousal/ Erection	G1 (N = 25) G2 (N = 30)	0.000 0.073
Orgasm/ Ejaculation	G1 (N = 25) G2 (N = 30)	0.000 0.000
Overall sexual functioning	G1 (N = 25) G2 (N = 30)	0.200 0.200

Sexual side effects — Frequency and severitySexual side effects was compared on SFQ for frequency as well as severity of all the domains, that is, desire, arousal/ erection, orgasm/ejaculation, and overall sexual impairment. The Sexual Functioning Questionnaire is a sensitive tool, with 38 items that assess sexual functioning. About 23% of the healthy volunteers had their score above 1 SD of the mean, thus having some impairment in one or the other domain of sexual functioning. For the medication group this was 96, for risperidone,.Desire was most commonly impaired in the risperidone group (80%).Erectile dysfunction was 40% in the risperidone group. Orgasmic dysfunction was common to the risperidone. This is shown in Table 6.

Table 5:
Comparison of chlorpromazine equivalent doses of risperidone

Drugs	Mean rank	Chi sq value	P
Risperidone	18.48	52.147	0.000

Kruskal Wallis test

Table 6: Frequency of sexual dysfunction across the two study groups

Study group	Desire (%)	Arousal/erection (%)	Ejaculation/orgasm (%)
G1 (N = 25)	80	40	32
G2 (N = 30)	20	20	21

DISCUSSION

Overall sexual impairment

The diagnosis of sexual dysfunction is not absolute Persons with adequate sexual functioning show enormous variability in frequency of sexual activity and desire; and normal sexuality may include an occasional dysfunctional moment. The literature addressing the western population report that about 10-15% of the normal population suffers from sexual dysfunction.[14] The SFQ recognized sexual dysfunction in 17% of the normal western population.[6] In the current study using the same SFQ, sexual dysfunction was recognized in 23% of the healthy volunteers. This is slightly higher than the western figures. However, the total mean score on SFQ of the healthy volunteers, in the original study, was 12.1 6 6.9 and in the current study it is 9.86 6 3.84. In other words, the severity of sexual dysfunction, (quantified by mean score) which has a greater impact, appears to be more or less the same.

In this study risperidone was associated with the most frequent overall sexual impairment (96%), although it was not statistically significant. Melkersson has also reported an overall sexual dysfunction of 89% due to risperidone. Up to 93% of risperidone-treated patients reported an overall impairment of sexual functioning in yet another study.[16

Desire

Impaired desire is the most frequently reported sexual dysfunction in the present study. An assessment of changes in libido associated with psychotropic medications can be difficult, because psychiatric illnesses can significantly affect sexual interest In symptomatic cases of schizophrenia with prominent negative symptoms, the frequency of sexual fantasy is much reduced and their sexual activity is reduced to masturbation. [17] The effects of antipsychotics on libido are not as well characterized as other forms of sexual dysfunction, in part because of the difficulty in measuring changes in libido. Nevertheless, several factors influence desire. Failure of erection may itself adversely affect a patient's desire. A patient's socioeconomic status and quality of life also influence his libido. Libido was the most frequently reported sexual dysfunction with both haloperidol (58%) and clozapine (50%), in one of the studies. [18] Of late, another study reported that impaired desire (44%) was the most common sexual dysfunction due to risperidone.[15] One more study reported that impaired libido is commonly seen even with quetiapine.[19] These finding are supported by the present study, which reports an impaired libido of 80% with risperidone.

Arousal/erection

Erectile problem was the second most frequent sexual side effect in the current study 40 % of the patient s using risperidone were associated with erectile dysfunction. However, it was easier to measure and quantify erectile dysfunction compared to libido, due to the availability of procedures like measuring nocturnal tumescence and penile plethysmography. One study reported erectile difficulties associated with antipsychotic drugs in 38% schizophrenic patients,[19] followed by 47% in another study,[26] and 52% in yet another.[8] However, these studies included typical antipsychotics too. In one of the studies on Indian population, the erectile dysfunction was 53% with typical antipsychotics and 31% with atypical antipsychotics and it differed significantly (P 5 0.025). However, the tool used for assessment was the UKU side effect rating scale. No comprehensive questionnaire was used.[9] The frequency of erectile dysfunction reported in the current study, however, falls in the range of that reported in earlier studies.

Orgasm/ejaculation

In a majority of the published studies, orgasmic and

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ejaculatory problems were less commonly reported than the desire and erection problems associated with antipsychotics. This is especially true in the case of atypical antipsychotics. A common problem in assessing orgasmic and ejaculatory problems is the co-occurrence of erectile dysfunction. In such cases the patient cannot satisfactorily recognize their ejaculatory and orgasmic function. As he cannot achieve complete erection, he may not ejaculate and experience orgasmic joy even though his orgasmic capacity is intact. This limitation could not be answered in our study too. Orgasmic and ejaculatory problems were least affected among the patients in the present study. Thirty- two percent of the patients on risperidone have orgasmic/ejaculatory problems. In a study by Wirshing and co-workers, orgasmic and ejaculatory difficulties were found in 86% of the patients on risperidone as compared to 20% on clozapine Nevertheless, the sample size was too small (n 5 14 for risperidone and n 5 5 for clozapine) and a Type II error was clearly evident.[20]

Only the clinically stable patients were incorporatedwitha careful assessment on BPRS, as the patients' account is less reliable during the symptomatic phase. However, full remission is rarely achieved in schizophrenia, especially with respect to negative and cognitive symptoms. The current study is, to some extent, similar in methodology to that of Smith and colleagues.[6] However, the latter has not used BPRS. They have used the Calgary Depression Inventory to rule out depression among patients withschizophrenia, and the UKU side effect rating scale to assess the autonomic side effects. Various questionnaires addressing sexual function have been used in different studies.[2,21-23] The problem with most of them is that the same questionnaire is not replicated in several further studies to enhance its validity. Furthermore, the reliability and validity of data collected by means of questionnaires are jeopardized by intentional nonreporting or over-reporting, incomplete recall, misunderstanding of survey questions, and selective participation. Therefore, the questionnaire is not entirely responsible for the credibility of the data. The current study has used the original SFQ, designed by Smith and colleagues, without any modification. It was based on the evidences that men with schizophrenia were able to answer direct questions regarding concrete aspects of sexual functioning. A sexual partner was not necessary to answer the questions in SFQ. In our patient population, the frequency of sexual dysfunction was much higher than in the original study by Smith and colleagues

The duration of antipsychotic exposure is an important factor in impaired sexual functioning. In case of risperidone, the literature says that it behaves as a typical antipsychotic in doses of more than 6 mg/day. However, it might have the same effects even in lower doses when given for several years. Thus both dose and duration may have equally important roles

CONCLUSION

The sexual dysfunction with risperidone is found to be significant in our study.

REFERENCE

1. Schiavi RC, Segraves RT. The biology of sexual function. Psychiatr Clin North Am 1995;18:7-23. | 2. Aizenberg D, Zemishlany Z, Dolfman-Etrog P, Weizman A. Sexual dysfunction in male Schizophrenic patients. J Clin Psychiatry 1995;56:137-41. | 3. Gitlin MJ. Psychotropic Medications and their effects on sexual function: Diagnosis, biology, and treatment approaches. J Clin Psychiatry 1994;55:406-13. | 4. Compton MT, Miller AH. Sexual side effects associated with conventional and atypical antipsychotic. Psychopharmacol Bull 2001;54:89-108. | 5. Kotin J, Wilbert DE, Verburg D, Soldinger SM. Thioridazine and sexual dysfunction. Am J Psychiatry 1976;133:82-85. | 6. Smith SM, O' Keane V, Murray R. Sexual dysfunction in patients taking conventional antipsychotic medication. Br J Psychiary 2002;181:49-55. | 7. Bobes J, Garc A-Portilla MP, Rejas J, Hern Ndez G, Garcia-Garcia M, Rico-Villademoros F, et al. Frequency of sexual dysfunction and other reproductive side-effects in patients with Schizophrenia treated with risperidone, olanzepine, quetiapine, or haloperidol: The results of the EIRE study. J Sex Marital Ther 2003;29:125-47. | 8. MacDonald S, Halliday J, MacEwan T, Sharkey V, Farrignton S, Wall S, et al. Nithsdale Schizophrenia surveys 24: Sexual dysfunction. Br J Psychiatry 2003;182:50-6. | 9. Nagaraj AK, Nizamie SH, Akhtar S, Sinha BN, Goyal N. A comparative study of sexual dysfunction due to typical and atypical antipsychotics in remitted bipolar I disorder. Indian J Psychiatry 2004;46:261-6. | 10. Byerly MJ, Nakonezny PA, Bettcher BM, Carmody T, Fisher R, Rush AJ. Sexual dysfunction associated with second generation antipsychotics in outpatients with schizophrenia or schizoaffective disorder: An empirical evaluation of olanzapine, risperidone and quetiapine. Schizophr Res 2006;86:244-50 | 11. Knegtering R, Casrelein A, Bous H, van Der Linsle I. A randomized open label study of impact of quetiapine versus risperidone on sexual functioning. J Clin Psychopharmacol 2004;24:56-61. | | 12. Overall JE, Gorham DR. The brief psychiatric rating scale (BPRS): Recent development in ascertaining and scaling. Psychopharmacol Bull 1988;24:97-9. | 13. Burke MA, McEvoy JP, Ritchie JC. A pilot study of a structured interview addressing sexual function in men with Schizophrenia. Biol Psychiatry 1994;35:32-5. | 14. Hallward A, Ellison JM. Sexual dysfunction. In: Antidepressants and sexual function. London: Harcourt Health Communications; 2001. p. 28-57. | 15. Atmaca M, Kuloglu M, Tezcan E. A new atypical antipsychotic: Quetiapine-induced sexual dysfunctions. Int J Impot Res 2005;17:201-3. | 16. Kelly DL, Conley RR. A randomized double-blind 12 week study of quetiapine, risperidone or fluphenazine on sexual functioning in people with schizophrenia. Psychoneuroendocrinology 2006;31:340-6. | 17. Crenshaw TL, Goldberg JP. Drugs that affect sexual functioning. In: Sexual Pharmacology. New York: WW Norton and Company; 1996. p. 307-16. | 18. Melkersson K. Differences in prolactin elevation and related symptoms of atypical antipsychotics in schizophrenic patients. J Clin Psychiatry 2005;66:761-7. |