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A STUDY OF SEXUAL DYSFUNCTION AND SERUM PROLACTIN LEVEL IN MALE PATIENTS WITH SCHIZOPHRENIA TREATED WITH ANTIPSYCHOTIC MEDICINES.

Psychiatry

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ABSTRACT

Background

Sexual dysfunction in schizophrenia may be a consequence of many factors; the condition itself, its socioeconomic impact & its treatment. Antipsychotics can induce side effect by blocking dopamine receptor may lead to amenorrhoea, galactorrhoea, sexual dysfunction, and osteoporosis.

Aim: To assess sexual dysfunction and Prolactin among antipsychotic medicines treated male schizophrenic patients.

Methods: A total 82 schizophrenic male were assessed for sexual dysfunction Psychotropic-Related Sexual Dysfunction Questionnaire (PRSexDQ-Salsex) and prolactin by ELISA method.

Results:

Here approximately 75.6% had sexual dysfunction, 42.7% (35) having moderate, 28% (23) mild and 4.9% (4) severe sexual dysfunction. The prolactin level was significantly higher in patients treated with Risperidone (75%) than compared to the combination of antipsychotics (55%) and only with olanzapine (17.6%).

Conclusions: Antipsychotic medicines have a great impact on sexual function. All healthcare professionals encourage to address sexual symptoms prior to the prescription of antipsychotics and on follow-up to improve treatment adherence.

KEYWORDS

Schizophrenia, prolactin, Antipsychotics, Sexual dysfunction

INTRODUCTION:

Sexual function is an essential factor of quality-of-life that is affected by many physiological as well as psychological factors. Sexual dysfunction can be distressing to patients [1,2] , is likely to be underestimated [1,3] and can adversely affect treatment compliance, [1,2] Non-compliance with antipsychotic medication can lead to relapse, re-hospitalization, poor outcome and high economic costs. [4] Despite the importance and high prevalence of sexual dysfunction, most sufferers do not seek help either due to the feeling of embarrassment or because they do not view it as a medical problem. [5,6]

The majority of all typical class of antipsychotic drugs are linked with decreased libido, impotence, anorgasmia [2] and menstrual disturbances [2,7,8,] because they cause elevated prolactin levels.[9] However, even SGAs that have been demonstrated adverse effect inducing weight gain, disturb glucose/ lipid metabolism and cause hyperprolactinemia [10] . Hyperprolactinemia is associated with blockage of D2 receptors via an effect on the pituitary gland system and associated with sexual dysfunction, including irregular menstruation and erectile insufficiency, decreases in bone density after long-term use, and the risk of breast cancer [8,11,12] .

It is unclear whether sexual dysfunction correlates to a direct effect and/or an indirect effect of hyperprolactinemia. Increased prolactin level, inhibit the hypothalamic release of GnRH (gonadotropin releasing hormone), a hormone that releases gonadotropins, follicle stimulating hormone (FSH) and luteinizing hormone (FSH) from the anterior pituitary gland (e.g., decreased level of estrogen in women and testosterone in men). [3,6,7] During long-term treatment with typical antipsychotics, it is reported that women have significantly more elevated prolactin level than men.[3] It is difficult to evaluate the effects of antipsychotic drugs on sexual function in patients with schizophrenia because they are often superimposed on sexual impairment caused by the disease itself.[2]

Antipsychotics and sexual dysfunction

Antipsychotic-induced adverse effects on sexual function are usually having a negative impact and may affect different phases of the sexual response cycle. It includes reduced sexual desire ("libido"), difficulty with erection, achieving orgasm and sexual satisfaction, as well as ejaculation disorders (delayed or absence of sexual stimulation, decreased ejaculatory volume) [2,7] . Antipsychotic drugs worked by the different mechanism of the pathway in the central nervous system (CNS). They can also cause endocrine disturbances by increasing prolactin. Different hypotheses have been suggested for the mechanism of action of antipsychotics on Sexual function. (Figure 1)

Figure 1: Diagrammatic presentation of effect of Neurotransmitters and their effects on sexual functioning and sexual desire

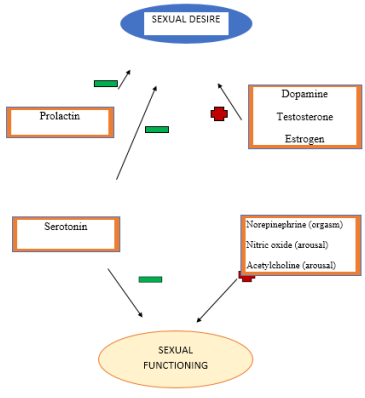


Figure 1: Neurotransmitters and their effects on sexual functioning and sexual desire: increase (plus sign) and decrease (mines sign)

In previous literature very few research studies available, especially in India who addressed sexual dysfunction due to antipsychotic

medications in Indian populations. Hence, the goal of this study to assess sexual dysfunction and Prolactin level in a hospital-based population taking antipsychotic medications.

MATERIALS AND METHODS:

Setting and sample

This was a cross-sectional observational study which conducted at psychiatry unit of government Hospital in north India. A total of 82 male patients presenting in psychiatry department who diagnosed schizophrenia by ICD-10 having 1 year or more duration of illness and taking pharmacological treatment at least minimum period of 6 months were included after informed consent.

Study patients

Inclusion criteria:

Patients aged between 18 – 50 years, living with a sexually active partner or having the stable heterosexual relationship and should be literate enough to understand the purpose of the study, take participate in this study were included.

Exclusion criteria:

Patients with comorbid medical illness and other illnesses direct causing sexual dysfunction, ongoing use of alcohol or other substance abuse (except tobacco) or taking other medications which known to responsible for sexual dysfunction were exempted from the study. Patients who presented primarily with sexual dysfunctions as a psychiatric disease were also excluded.

Measures and methodology:

For the socio-demographic profile, a self-designed proforma with Modified Kuppuswamy's Socioeconomic Scale (Bairwa et al., 2013) was used. This was followed by observer reported scales Psychotropic-Related Sexual Dysfunction Questionnaire (PRSexDQ-Salsex) [13] . Serum prolactin levels were measured by ELISA (enzyme-linked immunosorbent assay). Statistical analysis was done with the help of Microsoft Exel and Statistical Software SPSS-19. Ethical considerations: The Institutional Ethics Committee reviewed the study protocol and received permission from the hospital authority before the commencement of study.

RESULTS

A total of 82 male antipsychotic-treated schizophrenic included in the study, the average age in the group was 36.61yrs (S.D 7.68). Mean duration of illness was 8.65 years. Mean duration marriage was 14.79 years. Majority of the cases were Hindu, (100%) patients. The greater number of the participants were belonging to the rural area (95.1%) while 4.9% belonging from the urban area. Most of the patients were from nuclear family (92.7 %) while Few (7.3%) belonging from the joint family. Majority of participants were educated up to the middle (58.5%), followed by secondary (23.2%), senior secondary (9.8%) and graduate (8.3%).

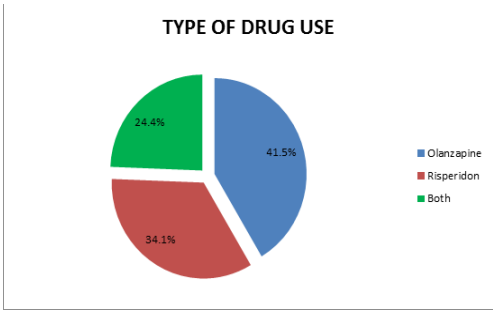
In this study, the majority of the participant (94.1%) were employed while only a few of them (4.9%) were unemployed. Most of them were belonged from low socioeconomic class (62.2 %), followed by middle socioeconomic class (36.6 %) and upper socioeconomic class (1.2 %). (Table 1)

Table 1: Participant characteristics:

Variable		Psychotropic treated (n=82)
		mean (SD) or N (%)
Age		36.61(7.68)
Marital status		
	Duration of marriage (years)	14.79(8.22)
	Duration of illness (years)	8.65(6.08)
Religion	Hindu	82 (100%)
	Muslim	0(0%)
Residential status		
	Rural	78 (95.18%)
	Urban	4 (4.90%)
Family type		
	Nuclear	76 (92.7%)
	Joint	6 (7.3%)
Education		
	Middle	48 (58.5%)
	Secondary	19 (23.2%)
	Sr. Sec	8 (9.8%)
	UG/PG	7 (8.5%)
Occupation		
	Unemployed	4 (4.9%)
	Unskilled worker	20 (24.4%)
	Semi Skilled	4 (4.9%)
	Skilled worker	17 (20.7%)
	Farmer/Clerk/Shop owner	31 (37.8%)
	Semi profession	1 (1.2%)
	Profession	5 (6.1%)
Socio-economic Status		
	Upper class	1 (1.2%)
	Middle Class	30 (36.6%)
	Lower Class	51 (62.2%)

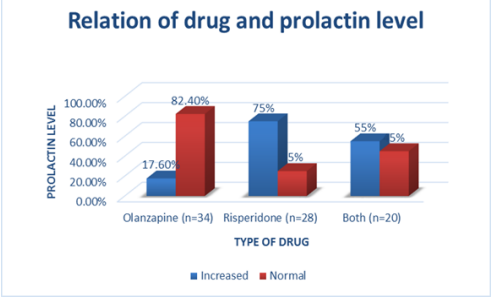
Type of drug used by study sample: Among the total 82 patients, 34(41.5%) were on olanzapine, 28 (34.1%) on risperidone and 20 (24.4%) used other groups of the combination of antipsychotics drug. (Figure 2)

Figure 2: Type of drug use among psychotropic treated group (n=82



Relation of drug and prolactin level: Maximum increase in the level of prolactin was found in patients who were on Risperidone (75%) followed by other groups of the combination of antipsychotics (55%) than only olanzapine (17.6%). (Figure 3)

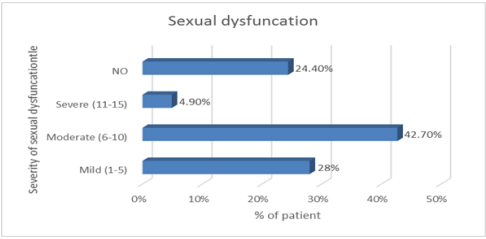
Figure 3: Relation of drug and prolactin level



Sexual dysfunction assessment by PRSexDQ [13]:

Among total of 82 patients, 42.7% (35) having moderate, 28% (23) mild and 4.9% (4) having severe sexual dysfunction while 24.4% (20) having no sexual dysfunction on assessment by PRSexDQ scale. (Figure 4)

Figure 4: Sexual dysfunction assessment by PRSexDQ (n=82)



DISCUSSION

Systematic studies have shown that high prevalent sexual dysfunction found in both treated and untreated schizophrenia patients. It is affecting 45-80% in men while 30-80% of women. On the basis of mechanism, the antipsychotic medications were associated with sexual dysfunction [14] significantly having difficulties with arousal and orgasm. [2] D2 dopamine receptors Blockage in the tuberoinfundibular pathway by antipsychotic drugs leads to an elevation in prolactin levels [3,9,15] , it can modify sexual function indirectly.

The present study included 82 antipsychotics treated schizophrenic married male patients to find out the assessment of sexual dysfunction, prolactin level, and socio-demographic profile. Serum prolactin levels were measured by ELISA (enzyme-linked immunosorbent assay).

Results showed that 75.6% had sexual dysfunction. Among the study group, 28% mild, 42.7 % moderate and only 4.9% severe having sexual dysfunction.

The similar finding reported in previous study Kumar S et al (2015) [16], 86% sexual dysfunction in one or more domains of sexual functioning in risperidone group as compared to 48.3% in olanzapine and 31% in clozapine groups, respectively. A Brief Psychiatric Rating Scale, Udvalg for Kliniske Undersogelser (UKU) Side Effect Rating Scale and Sexual Functioning Questionnaire were used.

Similarly, Tharoor H et al (2015)[17] study showed about 60.4% of the antipsychotic-treated (at least for 3months) patients having Sexual dysfunction on Psychotropic-Related Sexual Dysfunction Questionnaire (PRSexDQ-Salsex). While here among psychotropic treated patients (at least for 6 months) 75.6% had sexual dysfunction on the same Questionnaire.

Similarly, Montejo et al. [18] found (using the PRSexDQ-SalSex) that 46 % of patients of psychotic disorder, experienced sexual dysfunction, while on treatment with risperidone and typical antipsychotics. Their results showed slight low sexual dysfunction than our study. The reason behind it that schizophrenia is a chronic disorder while other psychotic disorders like bipolar disorder have asymptomatic periods in between, less duration of illness and better prognosis so they may have less sexual dysfunction than schizophrenia.

In the present study among a total of 82 patients in psychotropic treated group, 34 (41.5%) were on olanzapine, 28 (34.1%) on risperidone and 20(24.4%) used other combination of drugs, in which maximum increase in prolactin level was found in patients who were on Risperidone (75%) followed by other (55%) than only olanzapine (17.6%). It suggests hyperprolactinemia occur mainly due to risperidone rather than olanzapine or other antipsychotics.

Kumar S et al [17] concluded prolactin level elevation was statistically significant in the risperidone group followed by clozapine and olanzapine groups, respectively. In our study, prolactin level elevation was more in risperidone-treated patients than olanzapine-treated patients. So this results supported our study findings that Prolactin level elevation is more common in patients taking psychotropic drugs mainly due to risperidone than olanzapine.

Limitations: Small sample size and included only married male schizophrenic participant was one of limitation of this study. Hence, this gender-specific results could not be generalized for the whole schizophrenic population. Sexual dysfunction evaluation based on the subjective assessment in patients of schizophrenia. Impact of difference in class of drugs for each patient did not consider.

Future direction: Results of our findings support the results of previous studies that antipsychotic drugs having an effect on the sexual function of patients. Here female patients did not include, so gender bias could not establish. Female patients with schizophrenia should be evaluated in future studies to elicit gender dissimilarity. The small sample size is a hindrance to precision and generalizability of the study results. Hence, further studies need to use bigger sample sizes.

Objective correlates of sexual dysfunction such as nocturnal penile tumescence, penile plethysmography, and seminal fluid analysis would further verify the scales in future studies. Management approach for sexual dysfunction can be implicated for further study.

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