

# A Comparative Study of Sexual Dysfunction in Schizophrenia Patients Taking Aripiprazole Versus Risperidone

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## ABSTRACT

### Background

Sexual dysfunction due to antipsychotics is a significant problem encountered with first-generation antipsychotics. Even the second-generation antipsychotics like risperidone are not free of sexual dysfunction due to its D2 blocking properties leading to hyperprolactinaemia. Newer antipsychotic aripiprazole, partial dopamine agonist, with neutral effect on prolactin level or even decreasing it, is associated with avoidance of sexual dysfunction.

### Objectives

To assess the effect of risperidone and aripiprazole on sexual function of schizophrenic patients.

### Methods

This was an open-label, cross-sectional, observational study conducted at College of Medical Sciences, Bharatpur. Schizophrenic patients attending OPD and inpatient, taking risperidone or aripiprazole for at least two months were included in this study. Forty one patients, without chronic medical illness and sexual dysfunction before starting drugs, with informed consent were studied during Jan 2012 and Aug 2012.

### Results

Changes in sexual activity was found in 11(55%) of those taking risperidone while, only 3(14.3%) had any kind of sexual difficulty. This was statistically significant ( $p=0.006$ ). Majority, 92.7% of the patients did not report about changes in sexual activity spontaneously.

### Conclusion

Sexual dysfunction was statistically significantly higher in those taking risperidone. Prevalence of sexual dysfunction was low with aripiprazole. Except those having poor sexual functions due to the drugs, the majority had to be specifically inquired about the effects of drug on sex life.

## KEY WORDS

*Aripiprazole, risperidone, schizophrenia, sexual dysfunction*

## INTRODUCTION

Sexual relationships are central to the lives of most of us. Sexual dysfunction is uninvestigated significant public health problem. In the brain, sexual excitation depends to a considerable extent on dopamine and noradrenaline, and serotonin has a central role in the inhibitory system.<sup>1</sup> In many countries of the industrialised world second-generation ("atypical") antipsychotics (SGAs) have become the first line drug treatment for people with schizophrenia.<sup>2</sup> The question as to whether and if so how much the effects of

the various SGAs differ is a matter of debate. Disturbances in sexual function can occur with a number of antipsychotics including first and second generation agents.<sup>3</sup> DSM-IV-TR (Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition-Text Review) defines sexual dysfunction as characterized by disturbance in sexual desire and in the psychophysiological changes that characterize the sexual response cycle and cause marked distress and interpersonal

difficulty.<sup>4</sup> Aripiprazole is a partial agonist at D2 and a potent antagonist at 5-HT2A. Aripiprazole is effective in the treatment of acute psychosis in schizophrenia similar to that of risperidone. It is administered at dosage between 10 and 30 mg daily. It is associated with less rate of extrapyramidal side effects, is the least sedating, not associated with QT prolongation and minimal weight gain and sexual dysfunction.<sup>5</sup> While risperidone causes prolactin related disruption of hypothalamic-pituitary-gonadal axis that leads to decreased sexual interest and impaired sexual function.<sup>6</sup> This study was carried out to evaluate sexual dysfunction in schizophrenic patients taking aripiprazole and risperidone.

**METHODS**

Patients presenting in Psychiatry OPD and inpatient ward at College of Medical Sciences, Bharatpur, receiving aripiprazole or risperidone for schizophrenia for at least for two months continuously were included in the study with informed consent, between Jan 2012 to Aug 2012. Those who had sexual dysfunction prior to starting antipsychotics or with chronic medical illnesses were excluded. Psychotropic related sexual dysfunction Questionnaire was used to assess them. SPSS 20 was used to analyze the data. Purposive sampling technique was used and a total of 41 patients fulfilling the inclusion criteria and accepting to be included in the study with informed consent were studied.

**RESULTS**

A total of 41 patients, receiving risperidone or aripiprazole for schizophrenia for at least two months continuously were included in this study.

Table 1 shows that there were 20 patients taking risperidone and 21 taking aripiprazole. There was no statistical significant difference in the age groups taking either drug (p=0.731).

**Table 1. Age group.**

Age groups	Drug used		Total
	Risperidone	Aripiprazole	
25-39	17	17	34
40 and above	3	4	7
Total	20	21	41

Table 2 shows sex distribution with drugs. There were 16 males and four females with risperidone while 17 males and four females with aripiprazole with no statistical difference in the two groups (0.939).

Table 3 shows that majority of the patients were Hindus in both the drug groups, 17 in risperidone and 18 in aripiprazole with no statistical significant difference in the two drug groups (p=0.309).

Table 4 shows that, the distribution of the patients in

various socioeconomic groups was similar in both the study drug groups (p=0.785). Majority of patients were in the lower middle class with 15 in risperidone and 16 in aripiprazole group.

Table 5 shows the educational status of the patients, without any statistical significant difference (0.651) in the two groups. Majority of the patients included in the study were educated up to intermediate level or below, only three patients were graduate or post-graduates.

Table 6 shows the response of the patients to the question- 'have you observed any type of change in your sexual activity (excitation, erection, ejaculation, or orgasm) since you began taking the drug treatment'. Among those taking risperidone 11 (55%) responded yes while those taking aripiprazole 3(14.3%) reported any change in sexual activity. This was statistically significant (p=0.006).

Table 7 shows that majority 92.7 % of the patients did not report about changes in sexual activity spontaneously; only 7.3 % patients reported about sexual changes spontaneously. There was no significant statistical difference (p=0.065) in the two study groups.

Table 8 shows the response of the patients taking the two antipsychotics regarding any decrease in desire for sex was observed or not. Out of those taking risperidone, nine (45%), seven (35%), three (15%) and one (5%) reported no decrease, mild, moderate and severe decrease in desire for sex respectively. Similarly, in the aripiprazole group, 20 (95.2%), one (4.8%) reported no change in desire and mild change respectively. There was statistically significant difference in the risperidone and aripiprazole group (p=0.005).

Table 9 shows that seven (35%), 11 (55%), two (10%) patients taking risperidone had no delay, mild delay and moderate delay in ejaculation/orgasm; while among those taking aripiprazole, there was no delay in ejaculation/orgasm, with statistically significant difference in the two groups (p=0.000).

Table 10 shows the patients in the two study drug groups who were unable to ejaculate or have an orgasm. In the Risperidone group, one (5%) patient had inability to ejaculate/have an orgasm 25-75 % of the time, 7 (35%) had it less than 25% of the time while 12 (60%) had no difficulty. In the Aripiprazole group 18 (85.7%) had no difficulty, while three (14.3%) had the difficulty less than 25 % of the times. There was no statistically significant difference in the two groups (0.151).

Table 11 shows the frequency of difficulties seen in the patients regarding erection or maintaining it during sexual activity. Those taking risperidone, eight (40%) had no difficulties, 10 (50%) had the difficulty sometimes and two (10%) had it often. In the aripiprazole group, 15 (71.4%) had no difficulties with obtaining or maintaining erection and six (28.6%) had the difficulties with erection sometimes. There was no statistically significant difference in the two

**Table 2. Sex of the Patients.**

Sex	Drug used		Total
	Risperidone	Aripiprazole	
Male	16	17	33
Female	4	4	8
Total	20	21	41

**Table 3. Religion of the Patients.**

Religion	Drug used		Total
	Risperidone	Aripiprazole	
Hindu	17	18	35
Muslim	1	0	18
Christian	1	2	3
Buddhist	1	1	2
Total	20	20	41

**Table 4. Socioeconomic status**

Socioeconomic status	Drug used		Total
	Risperidone	Aripiprazole	
Upper middle	3	4	7
Lower middle	15	16	31
Upper lower	2	1	3
Total	20	21	41

**Table 5. Educational status.**

Educational status	Drug used		Total
	Risperidone	Aripiprazole	
Graduate or post-graduate	2	1	3
Intermediate	4	2	6
High school	2	6	8
Middle school	3	2	5
Primary school	6	6	12
Illiterate	3	4	7
Total	20	21	41

**Table 6. Response to the inquiry if any type of change in sexual activity was felt after beginning the treatment with risperidone or aripiprazole.**

Drug used	Any change in sexual activity		Total
	Risperidone	Aripiprazole	
Risperidone	Yes	No	20
	9 (45%)	11 (55%)	
Aripiprazole	18 (85.7%)	3 (14.3%)	21
Total	27 (65.9%)	14 (34.1%)	41

drug groups (p=0.078).

Table 12 shows how well did these patients tolerated the changes in sexual functions brought about by the drugs. Those receiving risperidone, eight (40%) had no sexual dysfunction, four (20%) had no problem due to this reason, five (25%) had tolerated fairly while three (15%) reported the dysfunction presenting an important

**Table 7. Was the reporting about sexual change spontaneous.**

Drug used	Did the patient spontaneously report this alteration		Total
	No	Yes	
Risperidone	17 (85%)	3 (15%)	20
Aripiprazole	21 (100%)	0 (0%)	21
Total	38 (92.7%)	3 (7.3%)	41

**Table 8. Any decrease in desire observed.**

Drug used	Any decrease in desire for sexual activity				Total
	No problem (0)	Mild decrease (1)	Moderate decrease (2)	Severe decrease (3)	
Risperidone	9 (45%)	7 (35%)	3 (15%)	1 (5%)	20
Aripiprazole	20 (95.2%)	1 (4.8%)	0 (0%)	0 (0%)	21
Total	29 (70.7%)	8 (19.5%)	3 (7.3%)	1 (2.4%)	41

**Table 9. Any delay in ejaculation/orgasm observed.**

Drug used	Was there any delay in ejaculation/orgasm				Total
	No delay (0)	Mild delay (1)	Moderate delay (2)	Intense delay (3)	
Risperidone	7 (35%)	11 (55%)	2 (10%)	0 (0%)	20
Aripiprazole	21 (100%)	0 (0%)	0 (0%)	0 (0%)	21
Total	28 (68.3%)	11 (26.8%)	2 (4.9%)	0 (0%)	41

**Table 10. Inability to ejaculate or have an orgasm once in sexual relations.**

Drug used	Inability to ejaculate or have an orgasm				Total
	None (0)	Less than 25% of the time (1)	25-75% of the time (2)	Always or almost always (3)	
Risperidone	12 (60%)	7 (35%)	1 (5%)	0 (0%)	20
Aripiprazole	18 (85.7%)	3 (14.3%)	0 (0%)	0 (0%)	21
Total	30 (73.2%)	10 (24.4%)	1 (2.4%)	0 (0%)	41

**Table 11. Any difficulty in obtaining an erection or maintaining once in sexual activity.**

Drug used	Any difficulty in obtaining an erection or maintaining			Total
	Never (0)	Sometimes (1)	Often (2)	
Risperidone	8 (40%)	10 (50%)	2 (10%)	20
Aripiprazole	15 (71.4%)	6 (28.6%)	0 (0%)	21
Total	23 (56.1%)	16 (39%)	2 (4.9%)	41

**Table 12.** How well have these changes in sexual functions been tolerated.

Drug used	How well have you tolerated these changes in sexual functions				Total
	No sexual dysfunction (0)	No problem due to this reason (1)	Fair (2)	Poor (3)	
Risperidone	8 (40%)	4 (20%)	5 (25%)	3 (15%)	20
Aripiprazole	13 (61.9%)	8 (38.1%)	0 (0%)	0	21
Total	21 (51.2%)	12 (29.3%)	5 (12.2%)	3 (7.3%)	41

problem. In those receiving aripiprazole, 13 (61.9%) had no sexual dysfunction, eight (38.1%) had no problem due to changes brought about by the drug. No patients in the aripiprazole reported the sexual changes bothering them or presenting as an important problem. The difference seen in the patients taking risperidone and aripiprazole was statistically significant ( $p=0.015$ ).

## DISCUSSION

The responses of the patients to the question- ‘have you observed any type of change in your sexual activity (excitation, erection, ejaculation, or orgasm) since you began taking the drug treatment’ were- among those taking risperidone, 55 % responded yes while those taking aripiprazole 14.3 % reported change in sexual activity. This was statistically significant ( $p=0.006$ ). Risperidone taking patients reported changes in sexual activity significantly higher than in the aripiprazole taking patients.

Majority, 92.7 % of the patients did not report about changes in sexual activity spontaneously, only 7.3 % patients report about sexual changes spontaneously. There was no significant statistical difference ( $p=0.065$ ) in the two study groups. Majority did not report about changes in their sexual activity. It could be due to our cultural factors, people having shame on talking about sexual difficulties. Only those who had severe difficulties were likely to report it spontaneously.

Considering response of the patients taking the two antipsychotics regarding any decrease in desire for sex was observed or not- out of those taking risperidone, 9 (45%), seven (35%), three (15%) and one (5%) reported no decrease, mild, moderate and severe decrease in desire for sex respectively. Similarly, 20 (95.2%), one (4.8%) reported no change in desire and mild change since they began taking aripiprazole respectively. There was statistically significant difference in the risperidone and aripiprazole group ( $p=0.005$ ). Risperidone was seen to cause decrement in desire for sex significantly than aripiprazole.

In the patients taking risperidone, seven (35%), 11 (55%), two (10%) had no delay, mild delay and moderate delay in ejaculation/orgasm while those taking aripiprazole

there was no delay in ejaculation/orgasm with statistically significant difference in the two groups ( $p=0.000$ ).

A higher proportion of men with schizophrenia treated with risperidone had at least one sexual dysfunction, lacked sexual desire and reported problems with sexual arousal and ejaculation. Women with schizophrenia were more likely to report problems with sexual arousal and galactorrhea.<sup>7</sup> The most frequently reported adverse effect associated with treatment emergent hyperprolactinemia for both men and women was diminished sexual desire ( $\gg 40\%$ ).<sup>8</sup>

In the Risperidone group, one (5%) patient had inability to ejaculate/have an orgasm 25-75% of the time, seven (35%) had it less than 25% of the time while 12 (60%) had no difficulty. In the Aripiprazole group 18 (85.7%) had no difficulty while three (14.3%) had the difficulty less than 25 % of the times. There was no statistically significant difference in the two groups (0.151).

The frequency of difficulties seen in the patients regarding erection or maintaining it during sexual activity- those taking risperidone, eight (40%) had no difficulties, 10 (50%) had the difficulty sometimes and two (10%) had it often. In the aripiprazole group, 15 (71.4%) had no difficulties with obtaining or maintaining erection and six (28.6%) had the difficulties with erection sometimes. There was no statistically significant difference in the two drug groups ( $p=0.078$ ). Sexual dysfunction and raised prolactin are common adverse effects of many anti-psychotics. Aripiprazole is an atypical anti-psychotic associated with a reduction in prolactin level in anti-psychotic-induced hyperprolactinaemia. Switching to aripiprazole or the addition of aripiprazole to another antipsychotic regime is associated with a reduction in sexual dysfunction.<sup>9</sup>

In a similar study, risperidone was associated with the most frequent overall sexual impairment (96%) compared to olanzapine (90%) and quetiapine (88%), although it was not statistically significant. Melkersson has also reported an overall sexual dysfunction of 89% due to risperidone.<sup>10</sup>

Considering how well did these patients tolerated the changes in sexual functions brought about by the drugs - those receiving risperidone, eight (40%) had no sexual dysfunction, four (20%) had no problem due to this reason, five (25%) had tolerated fairly while three (15%) reported the dysfunction presenting an important problem. In those receiving aripiprazole, 21 (51.2%) had no sexual dysfunction, eight (38.1%) had no problem due to changes brought about by the drug. No patients in the aripiprazole reported the sexual changes bothering them or presenting as an important problem. The difference seen in the patients taking risperidone and aripiprazole was statistically significant ( $p=0.015$ ). In a similar study comparing risperidone and aripiprazole in schizophrenia, sexual dysfunction was significantly higher with risperidone with mean prolactin levels decreasing with aripiprazole but significantly high, five-fold with risperidone.<sup>11</sup>

## CONCLUSION

Sexual dysfunction in patients taking risperidone is significant. It should be specifically inquired to assess the difficulties due to the drugs in sex life, otherwise it is not

reported spontaneously unless it is severe. The newer drug aripiprazole is better tolerated on considering the sexual functions. This seems to address the important disabling side effects of risperidone and the first generation antipsychotics.

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