

Effect on sexual dysfunction in depressed females after treatment with SSRI antidepressants

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Abstract

Introduction: Depression is associated with sexual dysfunction. As the depression improves sexual dysfunction also improves. There are not many studies on female sexuality. **Aims and Objectives:** To find out the changes in sexual functioning in depressed females after treatment with anti-depressant drugs. **Method:** 41 female patients diagnosed to have depression were included in study. Becks Depression Inventory, Arizona Sexual Experience Scale and Female Sexual Functioning Index scales were applied at the beginning and after 6 weeks to assess the improvement in sexual dysfunction and depression. **Results:** When scores were compared after 6 weeks of antidepressant treatment then a highly significant difference was seen on all the scores of BDI ($p < 0.000^{***}$), ASEX ($p < 0.027^{***}$) and FSFI ($p < 0.01^{**}$). On the various domains of FSFI a highly significant difference was seen on the domains of Arousal ($p < 0.03^{**}$), Lubrication ($p < 0.051^{**}$), Orgasm ($p < 0.028^{**}$) and Satisfaction ($p < 0.06^{**}$). Desire and pain domains did not show any significant changes. **Conclusions:** This study showed significant improvement in sexual dysfunction and different aspects of sexual dysfunctions after treatment with antidepressants for 6 weeks.

Keywords: female sexual dysfunction, depression, antidepressants, SSRI.

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INTRODUCTION

Sexual dysfunction is a common phenomenon in the general population affecting 43% of women and 31% of men¹. Sex being a taboo subject in India, reliable estimates of incidence and severity of sexual dysfunctions in females is difficult to obtain as patients often do not talk openly about the same to their treating physicians. Female sexual dysfunction is a multi factorial and multidimensional condition combining biological, psychological and interpersonal determinants and affecting personal relationships, physical health and quality of life². A number of investigators have reported

various sexual dysfunctions associated with depression³⁻⁶ and the Zurich cohort study found the prevalence of sexual problems in depressed subjects to be approximately twice than in controls⁷. There are several studies on male sexual dysfunctions in India³ but literature on the prevalence of sexual dysfunction among women is particularly scant⁴⁻⁶. Female sexual function is also regulated by a variety of neurotransmitters and hormones⁸ Estrogen, testosterone, and progesterone promote sexual desire; dopamine promotes desire and arousal, and norepinephrine promotes arousal. Prolactin inhibits arousal, and oxytocin promotes orgasm. Serotonin, in contrast to most of these other molecules, appears to have a negative impact on the desire and arousal phases of the sexual response cycle. The relationship between sexual dysfunction and depression seems to be bidirectional, in that the presence of either one of these conditions may trigger or exacerbate the other, and the treatment of one condition may improve the other. Most antidepressant drugs are associated with sexual dysfunction with varying degrees of prevalence⁹ but it is difficult to accurately identify treatment-emergent dysfunction, due to confounding factors, like mental illness itself, cultural influences, and co morbidity.¹⁰

Hence we felt a need to look into the effect of antidepressant medication on sexual dysfunctions in depressed women and undertook this research.

METHOD

This prospective study was conducted in the psychiatry outpatient department of a general municipal hospital after institutional ethics committee permission. All female patients attending psychiatry OPD and diagnosed to have depression as per Diagnostic and Statistical Manual of Mental Disorders, 4th edition, Text revision criteria¹¹ were considered for the study. Only those women who were 18-45 years of age, sexually active, not on any psychotropic medications and willing to participate in the 6 week trial were included in the study after their written informed consent. 52 female patients were screened of which 3 patients refused the consent. Of the 49 patients, 8 patients dropped out of the follow-up period over 6 weeks. At the end of 6 weeks, 41 patients were available for analysis. A proforma was designed to enquire into the socio-demographic details, duration of depression and the presence of sexual dysfunctions. All the patients were interviewed in presence of female co-investigator or a nurse and were interviewed in drug naïve state and were started on Tab. Escitalopram (5-20mg) or Tab Sertraline (25 -100mg) for underlying depression and the doses were titrated on weekly follow up and clinical improvement over 6 weeks. All the patients were administered Beck's Depression Inventory, Female Sexual Functioning Index and Arizona Sexual Experience Scale in the drug naïve state and at the end of 6 weeks of anti-depressant medication to gauge the improvement or worsening in mood and sexual functioning.

Tools: Beck's depression inventory (BDI)¹²

This is a 21 item scale which evaluates the key symptoms of depression. Individuals rate themselves on a 0 to 3 spectrum [0=least, 3=most] with a score range of 0 to 63. A total score is obtained.

Arizona sexual experience scale (ASEX)¹³

This scale is designed to measure 5 items as core elements of sexual function. These elements are sexual drive, arousal, vaginal lubrication, ability to reach orgasm and satisfaction from orgasm. The items are rated on a 6 point scale ranging from 1 (Hyper function) to 6 (Hypo function). A total score of >18 or <5 or greater on any one item is associated with clinical sexual dysfunction.

Female sexual functioning index (FSFI)¹⁴⁻¹⁶

It is a brief, multidimensional, self report instrument to assess the key dimensions of sexual function in females. The scale consists of 6-domains viz desire (2 questions), subjective arousal (4 questions), lubrication (4 questions), orgasm (3 questions), satisfaction (3 questions) and pain (3 questions). Overall test-retest reliability coefficients are high for each of the individual domains ($r = 0.79$ to

0.86) and the scale has been reported to have high degree of internal consistency (Cronbach's alpha values of 0.82 and higher) and good construct validity. The questionnaire is designed and validated for assessment of female sexual function in clinical trials and epidemiological studies. FSFI score of less than 26.55 is taken as an indicator of sexual dysfunction. The cutoff scores for sexual dysfunction in various domains are less than 4.28 for sexual desire, less than 5.08 for the arousal, less than 5.45 for the lubrication, less than 5.05 for the orgasm, less than 5.04 for the satisfaction and less than 5.51 for the domain of pain.

DATA ANALYSIS

All analyses were done with SPSS statistical version 11 at 5% significance. The improvement or worsening in both depression and sexual dysfunctions on the 3 scales viz Beck's Depression Inventory, Female Sexual Functioning Index and Arizona Sexual Experience Scale were analyzed pre and post treatment using the paired 't' test.

RESULTS

49 patients were included in the study. The mean age of this sample was 28.9 ± 3.03 years. The age range was 23-39 years with majority (81.6%, n=40) patients being from 25-31 years age group. Our study was done in a tertiary centre at a metropolitan city and 63.26% (n=31) of patients had completed their secondary education. Keeping in with the cultural tradition of India, majority of our sample (n=46, 94%) were home makers with hardly 6% (n=3) of them doing some job. About two-thirds (n=34, 69.38%) were Hindus, 20.4% (n=10) were Muslims and 10.2% (n=5) were Catholics. All the patients were clinically diagnosed as having Major Depressive Disorder as per DSM IV TR criteria. The mean duration of illness (depression) was 2 years with standard deviation of 1.8 years. At the end of 6 weeks, 8 patients were lost to follow up and had to be dropped out of the study. **Sexual dysfunction in patients prior and after receiving antidepressants as assessed on ASEX total and FSFI total and domain scores** The mean scores on ASEX were 21.8 with SD 6.1 in the drug naïve state and 20.3 with SD 6.4 after drug treatment which was not statistically significant ($t = 0.94, p=0.35$). As per the total ASEX score about two-thirds of our sample (n=33, 67.34%) had clinical sexual dysfunction. 32.6% (n=16) of the females did not satisfy the cut off score for clinical sexual dysfunction though they had responded in positive to certain problems in sexual functioning on the ASEX questionnaire. However the mean scores after drug treatment suggested that the sexual dysfunction did not change much with the antidepressant treatment. The mean scores on various domains of FSFI in patients prior and after receiving antidepressants were as follows: desire

(2.98, SD -0.92; 3.13, SD -0.93), arousal(2.34, SD -1.62; 2.70, SD -1.52), lubrication (2.25, SD -1.62; 2.65, SD -1.52),orgasm(2.27, SD -1.6; 2.71, SD -1.62), satisfaction(2.62, SD 1.4; 2.96, SD -1.3), pain(2.4, SD -1.7; 2.7, SD -1.6). The total mean score was (14.61, SD -8.52; 16.93, SD -8.29). No significant statistical differences were seen in the drug naïve and antidepressant treatment states on the FSFI scores. When the total FSFI scores of all the 49 patients were assessed then only 2 patients had a score above 26.55 in the drug naïve group and 47 patients had FSFI score less than 26.55 and were considered to have sexual dysfunction.

After treatment with antidepressants at the end of 6 weeks follow up, 3 out of 41 patients had scores more than 26.55 whereas 38 out of 41 patients had a lower score suggesting the presence of sexual dysfunction. On FSFI domains, it was found that nearly 53%(n=26) had lubrication dysfunction, 51%(n=25) had orgasmic dysfunction, 49%(n=24) had pain, 45%(n=22) had desire, arousal and satisfaction dysfunction. However when the patients were assessed on BDI then a highly significant difference was seen with an improvement in depression with treatment (t= 4.64,p = 0.0001). (Table 1)

Table 1: Depression and sexual functioning before and after antidepressant treatment

SCALES	BASELINE (n=49)		AFTER 6 WEEKS (n=41)		Paired 't' test	p
	Mean	S.D.	Mean	S.D.		
BDI	33.1	8.9	23.3	10.3	4.64	0.0001**
ASEX TOTAL	21.85	6.10	20.3	6.42	0.94	0.35
FSFI TOTAL	14.61	8.52	16.93	8.29	1.23	0.22
FSFI Domain Scores						
Desire	2.98	0.92	3.13	0.93	0.209	0.835
Arousal	2.34	1.62	2.70	1.52	1.123	0.268
Lubrication	2.25	1.60	2.65	1.52	1.19	0.235
Orgasm	2.27	1.66	2.71	1.62	1.24	0.215
Satisfaction	2.62	1.40	2.96	1.35	1.07	0.287
Pain	2.40	1.77	2.76	1.62	1.01	0.310

DISCUSSION

There is a broad consensus that the occurrence of sexual dysfunction is consistently higher in patients with depression than in the general population^{7,17,18}. Complaints of sexual dysfunction may indicate non response to treatment, progression of the underlying disorder, or adverse effect of drug treatment. Though sexual dysfunction was seen in majority of our patients both on ASEX and FSFI it was surprising to see that none of them complained about the same. The sexual dysfunction was seen on all domains of FSFI and the women expressed difficulty in desire, subjective arousal, lubrication, orgasm, satisfaction and pain. Though the depression improved and the patients felt better there was no significant improvement seen on desire or arousal domains. None of the patients reported a worsening in their sexual dysfunctions as the mean scores on all the domains remained more or less the same in the drug naïve and post SSRI treatment states. 8 of our patients were lost to follow up in the first week, the reasons for which remain unknown to us. In a prospective study carried out in Switzerland⁷, the overall prevalence of sexual problems in patients with depression was approximately twice that of controls (50% vs 24%), whereas no significant difference was seen in the prevalence of disorders of arousal and orgasm between untreated patients with depression and healthy controls.¹⁸ Healthy sexual functioning is important to most patients with depression who are receiving antidepressant therapy as

treatment-emergent sexual dysfunction can be an added source of distress which, if left untreated, may prolong or worsen the depressive illness, compromise treatment outcome and lead to noncompliance with treatment¹⁹⁻²¹. The brain plays a central role in sexual response, which involves a combination of neurogenic, psychogenic, vascular, and hormonal factors that are mediated through the hypothalamus, limbic system, and cerebral cortex⁸. Various neurotransmitters and neuropeptides have been implicated in the sexual response, and sexual dysfunction has been linked to increased serotonin, decreased dopamine, blockade of cholinergic and alpha1- adrenergic receptors, inhibition of nitric oxide synthetase, and elevation of prolactin levels²². Increased availability of serotonin inhibits sexual desire, ejaculation, and orgasm, mainly through 5-hydroxytryptamines 2 and 3 (5-HT2 and 5-HT3) receptor agonism, whereas dopamine release enhances sexual function⁸. The overall prevalence rate of sexual dysfunction in medicated patients with major depressive disorder (MDD) is estimated to be more than 50 %²³, with 32% of women and 34% of men experiencing treatment-emergent sexual adverse effects during treatment with a selective serotonin reuptake inhibitor (SSRI) or a serotonin norepinephrine reuptake inhibitor (SNRI)²⁴. However, the probability of acquiring treatment emergent sexual dysfunction varies according to the antidepressant used, and this effect may be dose dependent^{25,26}. This could be the reason why we did not see any worsening in the symptoms of sexual

dysfunction. In India, talking about sex related problems is almost taboo and since our patients were also initially reticent to talk about the same, it could be possible that there was some underreporting of their symptoms due to which we did not get any significant difference. Given the scarcity of evidence-based treatments, the management of sexual dysfunction is still an art rather than a science. Even a seemingly clear-cut case of medication-associated sexual dysfunction should not be treated in a vacuum or in a strictly biological sense. The overall treatment should always take into consideration psychological factors and normal fluctuation of sexual functioning. It is encouraging that new antidepressants with novel mechanisms of action may have less adverse effects on sexual function²⁷. However, there is a need for clinicians to assess sexual function systematically in patients with depression before selecting the most appropriate antidepressant medication.

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