

Original Article

A PILOT STUDY ON IDENTIFICATION AND MANAGEMENT OF DRUG INDUCED SEXUAL DYSFUNCTION: A COLLABORATIVE APPROACH BY CLINICAL PHARMACIST AND PSYCHIATRIST

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ABSTRACT

Objective: To assess the role of clinical pharmacists in the identification and management of drug-induced sexual dysfunction in collaboration with the psychiatrist and also to determine the prevalence and pattern of drug-induced sexual dysfunction, identify nature and extend of drug-induced sexual dysfunction, and assess the pattern of management of drug-induced sexual dysfunction.

Methods: This periodic prevalence interventional study was carried out among patients who visited the psychiatric department of a university hospital over three month's period. Patients were screened for sexual dysfunction using the Arizona Sexual Experience Scale (ASEX) by study pharmacists.

Results: Of the 100 patients reviewed, only 50% of subjects met the study criteria. Depression (42%) was the most common clinical diagnosis among the study patients. The overall prevalence of drug-induced sexual dysfunction was 16%. A higher incidence of drug-induced sexual dysfunction was observed in men (62.5%). Decrease libido (40%) was the most prominently observed drug-induced sexual dysfunction in both genders. Antidepressant (50%) was the most common class of drugs implicated in sexual dysfunction. Drug-induced sexual dysfunction was pharmacologically managed with vaginal lubrication (40%), Tadalafil (20%) and Tadalafil+Dapoxetine combination (40%).

Conclusion: With this study, provided a vision, further how prospective studies in this arena may be carried out for better understanding drug-induced sexual dysfunction and how a clinical pharmacist can contribute for better health care of patients in the sex clinic by collaborating with medical practitioners.

Keywords: Sexual dysfunction, Drug-induced sexual dysfunction, Prevalence, Clinical Pharmacist's Role, Sex clinic

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INTRODUCTION

In Basic Need for Life Pyramid, sex comes in the third position and its dysfunction has a significant impact on the quality of life of both patient and partner [1]. Sexual dysfunction refers to a disturbance in sexual functioning, due to psychophysiological changes in the sexual response cycle of men and women [2, 3]. Approximately, 43% of women and 31% of men experience sexual dysfunction [4]. Both men and women could encounter sexual dysfunction which may be presented as low libido, lack of swelling and lubrication in women, erectile dysfunction, premature, retrograde or absent ejaculation, anorgasmia and painful sex [5]. They may be due to medical conditions, psychosocial factors or drug therapy [4].

Globally, the prevalence of drug-induced sexual dysfunction varies from 4 % to 60%. Classes of drug which are reported to cause sexual dysfunction are antidepressants, antipsychotics, antihypertensives and antiepileptics. The prevalence of sexual dysfunction with above mentioned classes of drug are 30%-70% with antidepressants, 30-60% with first-generation antipsychotics [2], 20% with beta-blockers while the frequency is not defined for other classes of antihypertensives [5] and only few cases reports with antiepileptics [6-8]. People are not aware of the drug being accountable for causing or exacerbating sexual dysfunction; therefore, health care professionals need to have an open discussion with their patients about their sexual health in every visit for early detection of drug-induced sexual dysfunction and its management [2].

An important first step in approaching all patients with a sexual problem is taking details of medical (medication and disease state),

surgical, sexual and drug/substance abuse which is tedious [9]. In India, there are only two psychiatrists per 10 lakh population which is much less than the World Health Organisation (WHO) prescribed limit of 1:1000 [10]. Pharmacist being a member of the health care team can contribute to uplift the quality of life of patients. Therefore, an inter-professional collaboration might help in minimizing the burden on psychiatrists. There are few studies, especially in the Indian population, addressing drug-induced sexual dysfunction, and our study aimed to assess the role of clinical pharmacist in identification and management of drug-induced sexual dysfunction in collaboration with psychiatrist and also to determine the prevalence and pattern of drug-induced sexual dysfunction, identify nature and extend of drug-induced sexual dysfunction, and assess the pattern of management of drug-induced sexual dysfunction.

MATERIALS AND METHODS

Study design/period

This is a periodic prevalence interventional study carried out among inpatients and outpatients of the psychiatric department of a university hospital over a period of three months. Before commencing the study, approval from the Institutional Human Ethics Committee of JSS College of Pharmacy, Mysore, Karnataka was apprehended.

Study criteria

All patients aged 18 y and above, with at least one medication for a week, were included in the study. Patients were excluded from the study if mentally retarded or had a medical condition with a significant cognitive impairment or meaningful discussion between the patient and the

researcher was not possible, patients with severe and prolonged physical disability, patients with alcohol or other drug/substance abuse, patients who were receiving alternate system of medicine, patients having sexual dysfunction due to other causes apart from drugs, elderly patients aged ≥ 65 y and menopausal women.

Study procedure

Patients visited/admitted to the psychiatry department were reviewed and those who met study criteria were enrolled after the informed consent. All subjects were screened for sexual dysfunction using the Arizona Sexual Experiences Scale (ASEX) by the study pharmacists. The detailed medical (medication and disease state), surgical, and the status of sexual health of patients were taken by the study pharmacists to rule out other possible causes of sexual dysfunction. Suspected cases of sexual dysfunction were referred to a psychiatrist for diagnosis, classification and identification of the possible causes for sexual dysfunction. Once the diagnosis was

confirmed, an appropriate treatment strategy was developed by the psychiatrists in collaboration with study pharmacists. All the necessary data such as patient demographics, drug history, types of sexual dysfunction and management patterns were documented. Prevalence of drug-induced sexual dysfunction was calculated by taking patients who were suspected of having any sexual dysfunction caused by any class of pharmacological agents as the numerator and the total number of the patients who were enrolled in the study as the denominator.

RESULTS

Of the 100 patients reviewed, only 50% of subjects met the study criteria and were enrolled in the study, in which 18 (36%) were men and 32 (64%) were women. The mean age of the patients was 34.5 (range 20–52) years. Depression (42%) was the most common clinical diagnosis among the study patients. Sociodemographic details of the patients were presented in table 1.

Table 1: Sociodemographic details of the patients

Demographic characteristics	Patients with SD* (N = 8) [n (%)]	Patients without SD* (N = 42) [n (%)]	Total patients (N = 50) [n (%)]
Gender:			
Male	5 (62.5)	13 (31)	18 (36)
Female	3 (37.5)	29 (69)	32 (64)
Age group:			
20-24	1 (12.5)	4 (9.5)	5 (10)
25-29	0	10 (23.8)	10 (20)
30-34	2 (25)	13 (30.9)	15 (30)
35-39	1 (12.5)	3 (7.3)	4 (8)
40-44	1 (12.5)	7 (16.6)	8 (16)
45-49	2 (25)	5 (11.9)	7 (14)
50-54	1 (12.5)	0	1 (2)
Diagnosis:			
Depression	4 (50)	17 (40.5)	21 (42)
Bipolar affective disorder	2 (25)	7 (16.7)	9 (18)
Schizophrenia	1 (12.5)	3 (7.1)	4 (8)
Somatoform disorder	1 (12.5)	0	1(2)
Others	0	15 (35.7) **	15 (30)
Marital status:			
Married	7 (87.5)	34 (81)	41 (82)
Unmarried	1 (12.5)	8 (19)	9 (18)
Family type:			
Joint	4 (50)	11 (26.2)	15 (30)
Nuclear	4 (50)	31 (73.8)	35 (70)
Residential area:			
Rural	2 (25)	27 (64.3)	29 (58)
Urban	6 (75)	15 (35.7)	21 (42)
Education:			
Postgraduate or Professional degree	1 (12.5)	5 (11.9)	6 (12)
Graduate degree	2 (25)	9 (21.4)	11 (22)
High secondary certificate	3 (37.5)	7 (16.7)	10 (20)
Higher school certificate	0	10 (23.8)	10 (20)
Middle school certificate	0	6 (14.3)	6 (12)
Literate, less than middle school certificate	0	2 (4.8)	2 (4)
Illiterate	2 (25)	3 (7.1)	5 (10)
Occupation:			
Professional	3 (37.5)	4 (9.5)	7 (14)
Semi-professional	0	0	0
Arthematic skill jobs	0	0	0
Skilled worker	0	3 (7.1)	3 (6)
Semi-skilled worker	3 (37.5)	10 (23.8)	13 (26)
Unskilled worker	2 (25)	6 (14.3)	8 (16)
Unemployed	0	19 (45.2)	19 (38)
Comorbidity:			
Yes	3 (37.5) #	6 (14.3) §	9 (18)
No	5 (62.5)	36 (85.7)	41 (82)

SD*-Sexual dysfunction, **-Mania (n = 6), Obsessive compulsion disorder (n = 5), Seizure disorder (n = 1), Psychotic disorder (n = 1), Panic disorder (n = 1), Dysthymia with migraine (n=1), #-Hypertension (n = 1), Hypertension with Diabetes Mellitus with Chronic Kidney Disease (n=1), Hypertension with Hypothyroidism (n =1), §-Hypothyroidism (n = 1), Seizure disorder (n=1), Haemorrhoid (n = 1), Migraine (n = 1), Diabetes Mellitus (n = 1), Hypertension (n = 1).

A total of eight drug-induced sexual dysfunctions were identified among 50 patients. The overall prevalence of drug-induced sexual dysfunction was 16% and higher incidence was observed

in men [n = 5 (62.5%)] compared to women [n = 3 (37.5%)]. The pattern of sexual dysfunction existed in men and women was shown in fig. 1.

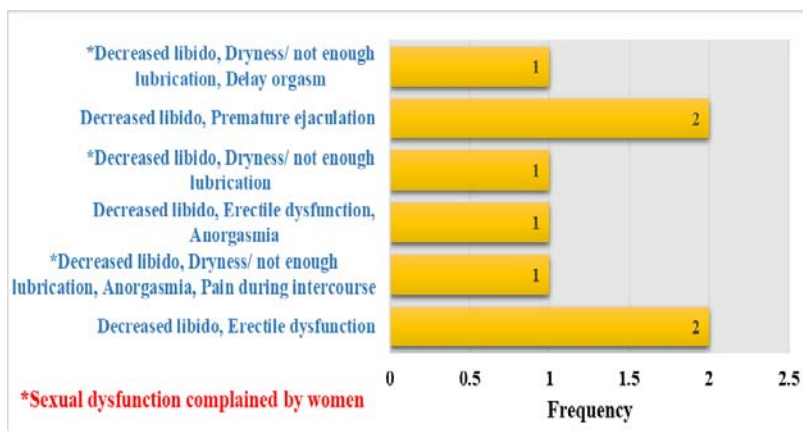


Fig. 1: Pattern of sexual dysfunction

Decreased libido [n = 8 (40%)] was the most prominently observed drug-induced sexual dysfunction, followed by erectile dysfunction and dryness/not enough lubrication [n = 3 (15%) each], while premature ejaculation and anorgasmia with same frequency [n = 2 (10%)]. Also, delay orgasm and pain during intercourse with the same magnitude [n = 1 (5%)]. Antidepressant [n = 3 (50%)] was the most common class of drug implicated in sexual dysfunction, followed by antipsychotic [n = 2 (33%)], and antiepileptic [n = 1 (17%)]. Escitalopram [n = 3 (37.5%)] was found to be contributing most to sexual dysfunction, while Desvenlafaxine, Duloxetine, Risperidone, Haloperidol and

Oxcarbamazepine were found to be of same magnitude [n = 1 (12.5%)]. Decreased libido was more frequently reported with all above mentioned drugs. Anorgasmia, erectile dysfunction, dryness/not enough lubrication and pain during intercourse were associated with Escitalopram. Similarly, anorgasmia and erectile dysfunction were found with Duloxetine and erectile dysfunction was found out with Desvenlafaxine. Delay orgasm and dryness/not enough lubrication with Oxcarbamazepine, while premature ejaculation was found with Haloperidol and Risperidone. The nature and extent of drug-induced sexual dysfunction were depicted in fig. 2.

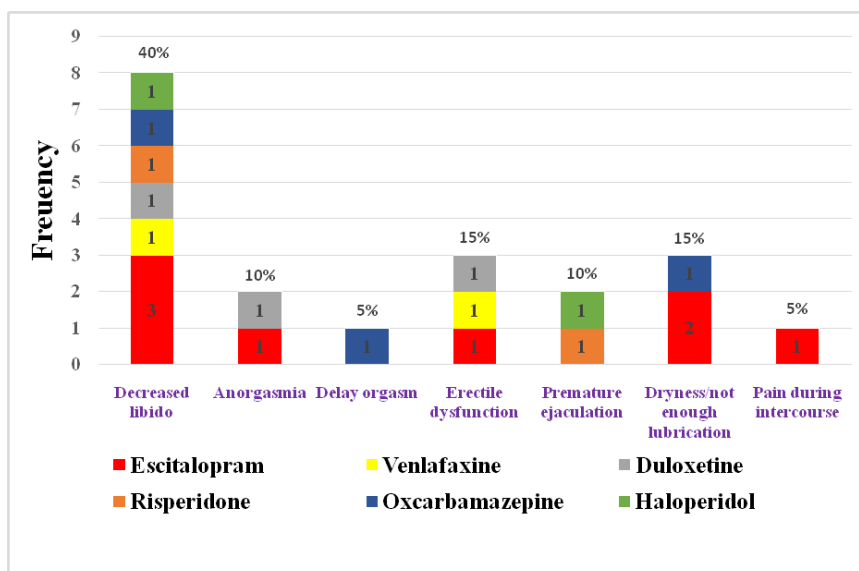


Fig. 2: Nature and extend of drug-induced sexual dysfunction

For the management of drug-induced sexual dysfunction among eight cases; in five cases, pharmacological agents were prescribed, those were Tadalafil [n = 1 (20%)], Tadalafil+Dapoxetine [n = 2 (40%)] and vaginal lubricant [n = 2 (40%)]. While, “no change” of suspected drugs [n = 2 (25%); as patients were well maintained on prescribed drug regimen, so psychiatrist gave a call not to stop or switch to other classes of drug], “dose altered” of suspected drug [n = 1 (12.5%)] and “stopped” suspected drugs [n = 2 (25%)] were the interventions taken

in those five cases. Whereas, in the other three cases, “as patients didn’t experience sexual problem to the extent, where they felt the need of having a pharmacological agent”, therefore denied the suggested treatment. Among remaining 3 cases, in 2, there were “no change” [n = 2 (25%)] in suspected drug responsible for sexual dysfunction; while in 1 case, the suspected drug was “stopped” [n = 1 (12.5%)]. The overall picture of action taken for suspected drug responsible for sexual dysfunction was depicted in fig. 3.

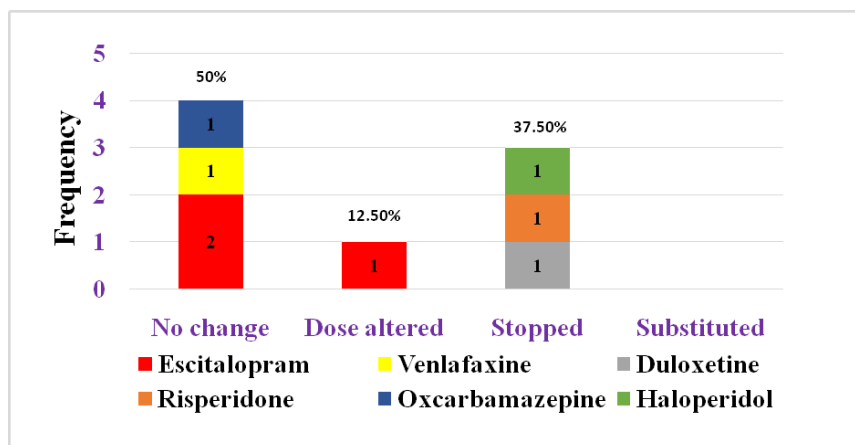


Fig. 3: Overall action was taken for suspected drug causing sexual dysfunction

DISCUSSION

Even though, many classes of drugs adversely affecting sexual functions like libido, erection, ejaculation and orgasm have been documented [11], statistically significant studies are still lacking [12]. Therefore, drug-induced sexual dysfunction was a relatively common yet poorly understood clinical problem. In this study, the prevalence of drug-induced sexual dysfunction was 16% and a higher incidence was observed in men (62.5%) compared to women (37.5%) which were just opposite to a study conducted by Jisha M. Lucca *et al.* where the higher incidence of drug-induced sexual dysfunction was in women (70.88%) [4]. This might be partially due to the social conservative norm, where women were uncomfortable to discuss sexual problems with the researcher (researcher was male) and might also be due to a smaller number of patients being enrolled in the study. Another possible reason for the change in incidence may be due to the difference in the scale used in the study. Depression (42%) was the most common clinical diagnosis among the study patients; this finding correlates with Lucca *et al.*'s report (2016). According to WHO also, depression was the most common psychiatric diagnosis worldwide [13]. A higher incidence of drug-induced sexual dysfunction was observed in married (87.5%) patients. It might be partially due to a more reliable assessment of sexual function in married patients compare to unmarried patients.

In this study, an antidepressant (50%) was the most common class of drug implicating in sexual dysfunction. However, different rates have been reported by other authors; Gregorian *et al.* [12] indicated rates of sexual dysfunction between 30% to 60%, while Clayton *et al.* [14] reported prevalence between 36% to 43% with antidepressants. The variation in prevalence rates might be due to different methodological approaches adopted by different studies. Escitalopram (37.5%) was contributing most to sexual dysfunction, while Desvenlafaxine (precursor of venlafaxine) and Duloxetine were found to be of the same magnitude (12.5%). Serretti and Chiesa reported the percentage of sexual dysfunction as 37% with Escitalopram, 42% with Duloxetine and 80% with Venlafaxine [15]. Escitalopram was having the same percentage of prevalence, while percentage differ with Duloxetine and Venlafaxine because only 2 patients were suspected drug-induced sexual dysfunction from each drug in this study, among eight drug-induced sexual dysfunction cases. Decreased libido, anorgasmia, erectile dysfunction, dryness/not enough lubrication and pain during intercourse were associated with Escitalopram, while decreased libido, anorgasmia and erectile dysfunction with Duloxetine; and with desvenlafaxine; decreased libido and erectile dysfunction were reported in this study. Similar sexual dysfunctions were reported by A. La Torre *et al.* among patients on SSRIs and SNRIs [16].

Antipsychotic drugs (33.33%) account for sexual dysfunction in this study. The prevalence rate varies widely among studies carried out by different authors for antipsychotic-induced sexual dysfunction. In

a study by Baggaley, 30% to 80% of female schizophrenic patients and 45% to 80% of male schizophrenic patients reported impaired sexual functioning [17]. Likewise, Macdonald *et al.* reported 82% of men and 96% of women [18] and Fan X *et al.* reported between 65% and 94% for both sexes [19]. Some studies have reported lower rates: approximately 58% of men and 33% of women in a study by Ghadirian *et al.* [20], 59.3% of men and 49.1% of women in the study by Fujii *et al.* [21], while only 10% (for both sexes) in the research by Knegtering *et al.* [22]. The variation in prevalence rates among the studies was mainly due to different methodological approaches adopted by different studies; like studies that relied only on spontaneous reporting of side effects, report low rates of sexual dysfunction, while studies using structured interviews or questionnaires show higher rates of sexual dysfunction. Also, some researchers included iatrogenic endocrine disorders (amenorrhea, galactorrhea and gynecomastia) as sexual dysfunction which is not termed under sexual dysfunction as per ICD-10, DSM-IV-TR, and therefore, may have affected the data on prevalence rates. Sexual dysfunction documented as antipsychotic-induced includes, decrease libido, erectile dysfunction, delay orgasm, anorgasmia, and ejaculation disorders (delayed or inhibited ejaculation, retrograde ejaculation, spontaneous ejaculation in the absence of sexual stimulation, decreased ejaculatory volume) [23-25]. In our study, the prevalence of sexual dysfunction with risperidone and haloperidol is 12.5% each; decreased libido and premature ejaculation were found to be associated with them. Dossenbach *et al.* reported the prevalence rate of 71% for haloperidol and 68% for risperidone [26]. Percentage variation exists while comparing the studies. This might be because only 2 patients were suspected as antipsychotic-induced sexual dysfunction in our study.

Antiepileptics or mood stabilizers have been documented to cause sexual dysfunction. Since epilepsy itself was a prominent risk factor for the development of sexual dysfunction; therefore, for patients who were on the anti-epileptic drug, it was difficult to rule out whether sexual dysfunction was a result of disease or induced by the anti-epileptic drug [27]. In this study, a patient diagnosed with Bipolar Affective Disorder was suspected as Oxcarbazepine (12.5%) induced sexual dysfunction, who complains of decreased libido, delay orgasm and dryness/not enough lubrication. In contrast to the findings of other studies, only some case reports of dose-dependent oxcarbazepine-related anorgasmia and retrograde ejaculation had been published [6-8].

The role of clinical pharmacists in this study were: (1) To screen patients using ASEX for sexual dysfunction, take precise medical, medication, surgical history, and gather information on retrospective and present status of sexual function by interviewing patient; (2) To educate patients about their medical condition, medication and importance of its adherence, possibility of drug causing sexual dysfunction and essence of discussing their sexual health with doctors in every visit in order to detect sexual

dysfunction as early as possible and to be treated on time, so that quality of life can be enhanced; (3) To convey patient's above-mentioned details to psychiatrist and suggest possibility of a drug for causing sexual dysfunction based on sexual function before and after the consumption of suspected drug in enrolled patient who were screened positive for sexual dysfunction by ASEX; (4) To make final confirmation of drug-induced sexual dysfunction by collaborating with psychiatrist.

Psychiatrists expressed their satisfaction for the work, done in collaboration with clinical pharmacists (studying pharmacists) and with its results in detecting and managing drug-induced sexual dysfunction, as it gave aid to better patient care as a team. Likewise, patients appreciated for counseling them about their disease, medication, the importance of its adherence, the possibility of the drug causing sexual dysfunction and essence of talking about their sexual health with doctors in every visit to detect sexual dysfunction as early as possible and manage the same on a timely manner for the better quality of life.

Limitations of the study

The Limitations in this study were: (1) There were no documented baseline sexual function of any reviewed patients before starting the drug therapy; (2) The information on sexual function before starting drugs were collected by interviewing patients retrospectively, so chances of bias from patient side; (3) India being country of diversity in custom, culture norms and value, society being conservative, many patients were not willing to discuss their sexual health with health care professionals because of which the study might have missed many cases of drug-induced sexual dysfunction and hence low prevalence rate compared to other studies. This was the main challenge faced by researchers in this study and the same was reported by other authors who conducted a study on sexual dysfunction (Jisha M. Lucca *et al.* 2016, Chukwujekwu Chidozie 2017 [26]).

CONCLUSION

Medical practitioners should initiate to talk with patients about their sexual health before starting any drug therapy. Baseline sexual function and sexual function of the patient in every visit should be documented using the appropriate scale as a part of the general examination to rule out this burdensome adverse effect of the drug as early as possible. Clinical pharmacists can play a role in such documentation and give a helping hand to medical practitioners to provide better patient care. This way it might help to carry out the prospective study, which may yield evidence-based statistically significant results nearly within the same narrow range though studies are carried out by different authors in different places and time, and may reveal answers of many mysterious questions in this arena of drug-induced sexual dysfunction.

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AUTHORS CONTRIBUTIONS

Dr Bilesh Shakya, Dr Tirin Babu, Dr Mohamed Shafi P and Dr Vemuri Tejasriwere involved in the collection of clinical details of the patients, literature search and preparation of the manuscript. DR Juny Sebastian, Dr Shivananda J Manohar and DR Jisha M Lucca designed the study, supervised the manuscript preparation and reviewed the manuscript.

CONFLICTS OF INTERESTS

Authors declare no conflicts of interest.

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