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Sexual Dysfunction in Males with Epilepsy: A Cross-sectional Study from Tertiary Care Hospital of Northwest India

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Abstract

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Introduction

Amongst neurological disorders, epilepsy is a common disorder with a prevalence of around 0.5–1.5% worldwide. Talking about sexual dysfunction is still a taboo in this part of world however with western culture people are opening with these issues also. About 30 percent of men with epilepsy may suffer from sexual dysfunction

which constitute great proportion of patients. [1,2] Various disorders are included amongst sexual dysfunction that affects libido, ability to attain or maintain an erection (erectile dysfunction or impotence), ability to ejaculate, and ability to achieve an orgasm. Out of these, the most common sexual dysfunctions experienced by men are premature/delayed ejaculation, erectile dysfunction, and hypoactive sexual desire. As per various conducted in past, a definite correlation has been observed between abnormalities in sexual functions and epilepsy.[2] Both, the disease that is epilepsy itself and drugs used to treat known as antiseizure drugs (ASDs) are known to cause sexual dysfunction.

It significantly affects the quality of life of patients with epilepsy and it is often overlooked by the physicians while taking history. Attention must be paid to sexual life of patients especially males. There is also very limited data available from north west of India.[3,4] To address the current gap in the literature, this study was conducted to assess the magnitude of sexual dysfunction males suffering from epilepsy.

Material and Methods: The present study was a cross-sectional observational study conducted by the Departments of Neurology of a tertiary care level hospital attached to a Medical College in Rajasthan, India after receiving Institutional ethical committee approval. One hundred and sixty seven consecutive male patients suffering from seizures in the age range of 18–40 years, attending the outpatient department (OPD) were enrolled in the study with a seizure-free interval of a minimum of 12 months and on anti-seizure medications for at least 2 years were included in this study. Ethics committee approval was taken. All the patients were examined and detailed history such as the age of onset, duration of epilepsy, frequency of attack, precipitating factors, drug history, and family history was taken. Diagnosis of seizures was based on detailed history and examination which was done by the neurologist, recorded videos of seizure episodes which were brought by the attendants/patient, abnormal EEG findings, and normal neuroimaging. The patients not

willing to give consent, with a history of pre-existing psychiatric illness including mental retardation, substance abuse/dependence, or suffering from any other comorbid medical and surgical illnesses were excluded from the study.

Assessment tool: One sixty-seven enrolled participants were first administered a semi structured proforma which was designed for capturing the socio-demographic and clinical data. Arizona sexual experience rating scale (ASEX) was applied to identify sexual dysfunction. ASEX is a five-item scale with a score range from 0 to 30, it includes questions regarding sex drive, arousal, vaginal lubrication/penile erection, ability to reach orgasm, and satisfaction from orgasm. The patients scoring more than 19 as a cut-off score on ASEX were considered to be suffering from sexual dysfunction

and a final diagnosis of sexual disorder was made as per criteria of the International Classification of Disease mental and behavioral disorders, clinical description and diagnostic guidelines 10th edition (ICD-10). [5,6]

Erectile dysfunction was defined as failure to obtain and maintain an erection sufficient for sexual activity or decreased erectile turgidity on 75% of sexual occasions and lasting for at least 6 months.

Premature ejaculation was defined as per DSM-5 as a persistent or recurrent pattern of ejaculation occurring during partnered sexual activity within approximately 1 minute following vaginal penetration and before the individual wishes it. The symptom must have been present for at least 6 months and must be experienced on almost all or all (approximately 75–100%) occasions of sexual activity (in identified situational contexts or, if generalized, in all contexts). The symptoms ... cause clinically significant distress in the individual" and "The sexual dysfunction is not better explained by a nonsexual mental disorder or as a consequence of severe relationship distress or other significant stressors and is not attributable to the effects of a substance/medication or another medical condition.

Hypoactive Sexual Desire Disorder (HSDD) (DSM-5) was defined by two criteria: A "persistently or recurrently deficient (or absent) sexual fantasies and desire for sexual activity" and B "marked distress or interpersonal difficulty."

The data thus collected were compiled and analyzed further. The quantitative data were analyzed by mean and standard deviation, and qualitative data were analyzed in percentage. The statistical analysis was performed by using SPSS 26 version software. An unpaired t test was applied to find out the association between quantitative data. *P* value < 0.05 was considered significant.

Results:

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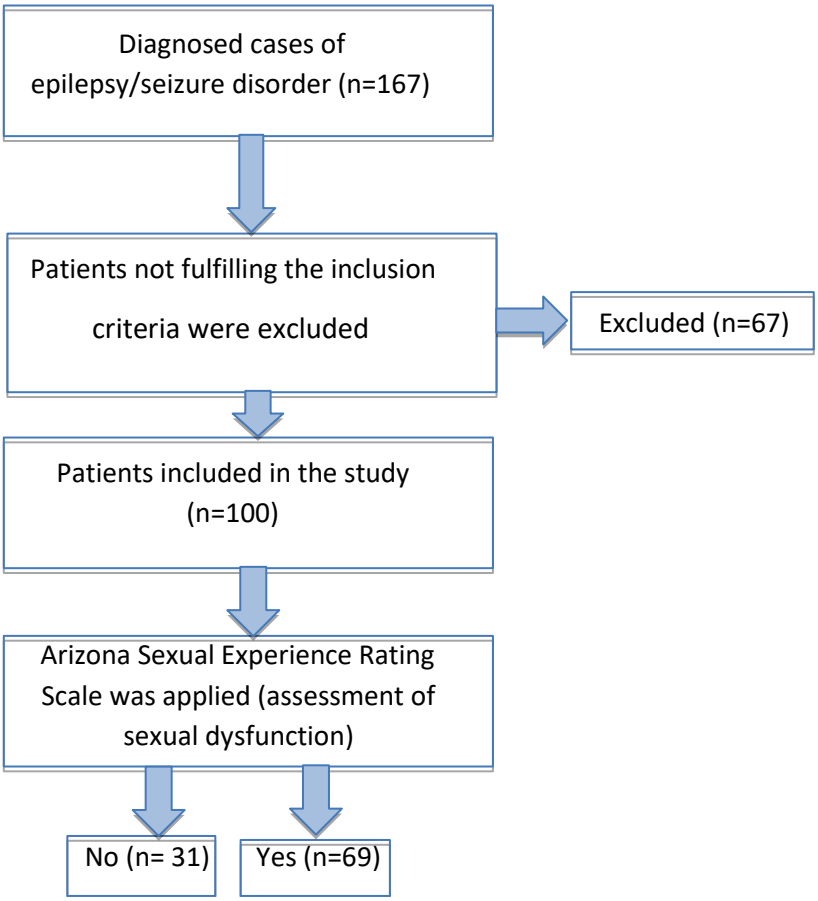

The mean age of our patient population was 31.5 ± 2.45 years. Sixty three percent of patients were from an urban background, 49% were educated till 10th class, 33% were in service, and around 67% had family income between 5,001 and 10,000 Rupees. The majority of participant patients were married (88%), the mean age of first sexual intercourse of such patients being 21.76 ± 2.84 years, and 78% of the patients had only one sexual partner. The mean age of onset of first seizure was 24.14 ± 4.62 and the mean duration of epilepsy was 4.6 ± 2.9. Fifty-six percent (n = 56) were on monotherapy58, 41% (n = 41) were on two drug therapy, and 3% (n = 3) were on three drugs.

Out of 100 patients, on applying Arizona sexual experience rating scale, 69 participants (69%) scored more than 19 and of such 69 patients, majority were suffering from *erectile dysfunction* (n = 38, 38%) followed by *premature ejaculation* (n = 28, 28%) and *hypoactive sexual desire* (n = 3, 3%)

A statistically significant association was observed between the sexual dysfunction and total duration of illness. Out of 58 patients with a duration of illness of fewer than 5 years, 34 patients (59%) were diagnosed with sexual dysfunction, whereas out of 42 patients with a duration of illness of more than 5 years, 35 patients (83%) were diagnosed with sexual dysfunction.

Similarly, a statistically significant association was also observed between the total number of antiseizure medicine and sexual dysfunction. Out of 56 patients who were on monotherapy, 34 patients (61%) had sexual dysfunction while on the other hand, out of the other 44 patients who were on polytherapy, 35 patients (80%) were having sexual dysfunction.

On assessing the effect of monotherapy on sexual dysfunction, it was observed that 44% (n = 21) of patients taking valproate had sexual dysfunction followed by phenytoin (40%) (n = 22), whereas only 4% (n = 2) patients taking levetiracetam were experiencing sexual dysfunction. While exploring the

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relationship between sexual dysfunction and polytherapy, 100% (n = 3) of patients who were taking a combination of three ASDs (phenytoin + valproate + levetiracetam) had sexual dysfunction followed by 24% (n = 7) of patients who were taking a combination of valproate with levetiracetam were suffering from sexual dysfunction. Seventy-five percent (n =8) of patients taking a combination of phenytoin with phenobarbitone were suffering from sexual dysfunction. The least sexual dysfunction was observed in patients who were on a combination of phenytoin with levetiracetam which was 14.4% (n = 6).

While evaluating the effect of individual drugs or combination of drugs on sexual dysfunction, it was observed that patients on sodium valproate as monotherapy (n = 44) had both erectile dysfunction and premature ejaculation in 43% (n = 6) cases each with no hypoactive sexual desire disorder. In the patients taking levetiracetam only, 25% (n = 2) had premature ejaculation, and 12.5% (n = 1) had erectile dysfunction while 62.5% (n = 10) had no sexual dysfunction.

Among the patients who were on polytherapy with levetiracetam and valproate (n = 16) 75% (n = 12) of cases had erectile dysfunction; premature ejaculation was present in 12.5% (n = 2) cases; and hypoactive sexual desire, in 12.5% (n = 2) cases. Among the patients on phenytoin and levetiracetam (n = 18) erectile dysfunction was present in 39% (n = 7) of cases and premature ejaculation, in 6% (n = 1) cases with no cases of hypoactive sexual desire.

Premature ejaculation was more common among patients who were on dual therapy of phenytoin and phenobarbitone (74%, n = 8). In the present study, hypoactive sexual desire was observed in four patients, out of which, two patients were on a combination of three antiseizure medicines (phenytoin, valproate, and levetiracetam), and the remaining two were on dual therapy of levetiracetam and sodium valproate.

Table 1. showing number of patients with sexual dysfunction

Sexual dysfunction	Number of patients	Percentage
Yes	69	69
No	31	31
Total	100	110

Table 2. showing distribution of various disorders of sexual function

Diagnosis	Number of patients (%)
Premature ejaculation	28
Hypoactive sexual desire	3
Erectile dysfunction	38
No sexual dysfunction	31

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Table 3. showing correlation of duration of epilepsy with sexual dysfunction				
Duration of epilepsy	Number of patients	Sexual dysfunction present	Percentage	P value
<5 years	58	34	59%	<0.005
≥5 years	42	35	83%	

Table 4. showing effect of antiepileptic drug therapy with sexual dysfunction				
Antiepileptic drugs	Number of patients	Sexual dysfunction present	Percentage	P value
Monotherapy (1 drug)	56	34	61%	<0.005
Polytherapy (≥ 2 drugs)	44	35	80%	

Table 5. showing distribution of sexual dysfunction in patients taking antiepileptic drug therapy			
Antiepileptic drug	Sexual dysfunction present	Normal sexual function	P value
Phenytoin sodium	12	1	< 0.05
Levetiracetam	2	14	
Carbamazepine	7	6	
Sodium valproate	13	1	
Levetiracetam and sodium valproate	8	2	

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Phenytoin sodium and levetiracetam	9	2	
Phenytoin sodium and phenobarbitone	8	1	
Phenytoin sodium, levetiracetam and sodium valproate	10	4	
Total	69	31	

Discussion: The relationship between sexual dysfunction and epilepsy appears to be a wide variation in their reported prevalence. Males with epilepsy are affected by sexual dysfunction but generally the disorder goes unnoticed or unreported. In the present study, sexual dysfunction was found in 69% of males suffering from epilepsy. The results are in concordance with studies conducted in past. Study by Rathore et al. concluded that around 50% of males with epilepsy have sexual dysfunction.[7] Another study conducted on males with idiopathic generalised epilepsy, 66% patients were found to have sexual dysfunction. [8] Bóné and Janszky have reported that around 40%–70% of male epileptic patients on ASDs suffer from sexual dysfunctions.

[9] There are various mechanisms described in literature regarding the causation of sexual dysfunction amongst people with epilepsy. One of the causes is thought to be mediated by change in sex hormones as a result of disturbances in the GnRH pulse generator activity, the spread of epileptiform activity to the limbic system, ictal or interictal activity interfering with the hypothalamus hypophysis adrenal axis. Secondly, the ASDs can cause sexual dysfunction directly by influencing neural transmission in pathways among the limbic system and the hypothalamic–pituitary axis (HPA) that are significant for sexual response. It has been noted that certain drugs for example

sodium valproate, phenobarbitone may worsen sexual functions while others such as oxcarbazepine, lamotrigine, and levetiracetam may actually improve them. In the current study, sodium valproate, phenytoin sodium and phenobarbitone when used as monotherapy or combination were found to have adverse effect. Additionally, seizure frequency, age of onset/duration of epilepsy along with the seizure type are the factors that may cause sexual dysfunction. In this study, increasing duration of epilepsy was found to have impact on sexual function. 83% of patients with duration of epilepsy more than 5 years had sexual dysfunction (compared to 59% patients with disease less than 5 years). The findings are in coherence with what has been described by Hamed SA et al. in their study.[10] Mattson et al. in their study on effects of traditional ASDs found a high incidence of impotence or decreased libido with drugs like carbamazepine (13%), phenobarbital (16%), phenytoin (11%) and primidone (22%). New ASDs were found to have less effect on sexual functions. [11] In our study, 92% of patient on phenytoin, 54% on carbamazepine had sexual dysfunction. Primidone drug was not found in prescriptions of the studied population. 93% of patients with sodium valproate as monotherapy were found to have sexual dysfunction which is in concordance to the findings of Beran et al. [12] The exact mechanism by which the ASDs effect sexual function is not understood. However, there are various proposed theories ranging from effects on hypothalamo-pituitary-gonadal axis, hormone levels, psychiatric comorbidities and autonomic imbalance etc. Sexual dysfunction which includes reduced the sexual desire, erectile dysfunction, and premature ejaculation which accounts for about 40-70% overall in patients with epilepsy. In our study, we found that most common amongst forementioned disorders was

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erectile dysfunction (38%) followed by premature ejaculation (28%) and hypoactive sexual desire (3%). Kuba et al. studied sexual function in 40 men with intractable epilepsy. They found that 15% of the total patients developed ED, 15% developed orgasmic dysfunction, 40% had a loss of sexual desire, 55% were dissatisfied with sexual intercourse whereas 50% has dissatisfied sexual life. [13] Various case reports in literature have shown that ASDs especially sodium valproate and carbamazepine are associated with orgasmic anejaculation, premature ejaculation etc. [14,15]. Another issue in patients with epilepsy especially intractable epilepsy is the use of polytherapy. It was found that sexual dysfunction was more in polytherapy group (80%) as compared to the monotherapy group (61%) which could be attributed to the combined effects of drugs (as discussed earlier), intractable epilepsy or uncontrolled status and lastly the psychopharmacological and endocrinological status of the individuals. There is significant amount of comorbidity that exists in the form of sexual dysfunction amongst male with epilepsy which need to be addressed.

Conclusion: Sexual dysfunction in males with epilepsy is often under reported and under diagnosed. Looking at the such a high magnitude of implicit sexual dysfunction in epileptic patients (not being reported), a high index of suspicion should be kept in mind while treating such patients. Patients should be screened regularly with tools like ASEX questionnaire to rule out underlying sexual dysfunction.

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