Epilepsy & Behavior 83 (2018) 108–112

Contents lists available at ScienceDirect

Epilepsy & Behavior

journal homepage: www.elsevier.com/locate/yebeh

Sexual dysfunction among Nigerian women with epilepsy

Luqman Ogunjimi *, Joseph Yaria, Akintomiwa Makanjuola, Adesola Ogunniyi

Department of Internal Medicine, University College Hospital, Ibadan, Nigeria

ARTICLE INFO

Article history:
Received 3 December 2017
Revised 2 February 2018
Accepted 2 February 2018
Available online xxxx

Keywords:
Epilepsy
Women
Sexual dysfunction

ABSTRACT

Objectives: Sexual dysfunction (SD) has been shown to be more prevalent among females with epilepsy (FWE) when compared with controls. Identified risk factors for SD among FWE include depression, antiepileptic drug (AED) type, epileptic lateralization, and temporal lobe involvement. Despite a huge population of FWE in sub-Saharan Africa and by extension Nigeria, there are limited studies on the effect of AEDs and epilepsy on sexual function among FWE in the region. We therefore studied predictors and patterns of SD among Nigerian FWE.
Method: This was a descriptive study carried out at the University College Hospital, Oyo State — a tertiary hospital in South-Western Nigeria. The Zung Self-rating Depression Scale was used to assess mood. Sexual dysfunction was measured using the Arizona Sexual Experience Scale (ASEX) questionnaire.
Results: The frequency of clinically significant SD among FWE (35, 50.0%) was similar to that of controls (27, 38.6%; $p = 0.173$). However, the mean ASEX score was higher in FWE than in controls ($p = 0.009$). Using domains defined by the Diagnostic and Statistical Manual of Mental Disorders — 5th Edition (DSM-V), we observed that FWE had higher scores in all domains. Sexual dysfunction was also more prevalent among FWE with lesional epilepsy when compared with those with nonlesional epilepsy. Standardized beta coefficients from multiple regressions conducted suggest that age of FWE, the presence of motor weakness, and systolic blood pressure contributed to SD.
Significance: Females with epilepsy had higher ASEX scores in all domains, with older FWE and those with lesional epilepsy more likely to have SD. Healthcare providers should pay attention to SD among FWE for improved quality of life.

1. Introduction

The effect of epilepsy and antiepileptic drugs (AEDs) on sexuality and other endocrine functions like sexual development, menstrual cycle, contraception, and fertility is unique to females with epilepsy (FWE) [1,2]. Sexual dysfunction (SD) has been shown to be more prevalent among FWE when compared with controls [3,4]. It is clear that the etiology of SD in epilepsy is multifactorial [5], with dysfunctions in hypothalamic and gonadal function postulated as a possible explanation [4,6]. Other mechanisms adduced include impairment of serotonin transporters, remodeling of the hippocampus by sex steroids, and disruption of the hypothalamic–pituitary–adrenocortical axis. These are said to be responsible for the temporal lobe effect on SD [3,7].

Identified risk factors for SD among FWE include depression, AED type, epileptic lateralization, reproductive endocrine dysfunction, and temporal lobe involvement [3–6,8,9]. Traditional AEDs have been related to hyposexual disorders, especially those interfering with cytochrome p450 metabolism [9–12]. The liver enzyme-inducing AEDs, like carbamazepine and phenytoin, can cause SD by accelerating sexual hormone metabolism, stimulating sex hormone binding globulin, and decreasing bioactive testosterone, while liver enzyme-inhibiting AEDs like valproate seem to increase estrogen levels [12,13]. There is a growing evidence implicating newer AEDs in SD, and these were linked to their ability to modulate brain and spinal cord neurotransmission, negatively affecting monoaminergic pathways [10,11,14,15].

In Africa, few studies highlight associations between SD and other medical conditions. It is important to know the experiences of these patients as these can affect compliance with medications prescribed. There is a growing need to exploit this avenue and identify relevant factors that may be useful in planning for their care with hope of improving healthcare delivery and quality of life in FWE. Furthermore, the risk for depression is higher in people with epilepsy than in the general population [16,17]. Depression and its severity have been correlated with SD, especially with regard to sexual interest and arousal [2,5,16]. Despite a huge population of FWE in sub-Saharan Africa and by extension Nigeria, there are limited studies on the effect of AEDs and epilepsy on sexual function in FWE in this region, with little attention paid to reproductive health issues. We therefore studied predictors and patterns of SD among Nigerian FWE.

* Corresponding author.
E-mail address: ogunjimi.lukman@uch-ibadan.org.ng (L. Ogunjimi).

https://doi.org/10.1016/j.yebeh.2018.02.004
1525-5050/

2. Method

This was a descriptive study carried out at the University College Hospital, Oyo State — a tertiary hospital in South-Western Nigeria. Ethical clearance was obtained from the Joint Institutional Review Committee (IRC) of the University College Hospital and the College of Medicine, University of Ibadan. Seventy preplanned, randomly selected FWE attending the medical outpatient department of the hospital between 18 and 56 years and age-matched controls were recruited. Diagnosis of epilepsy was made clinically with electroencephalographic features taken into consideration. Participants who were not sexually active, were prediagnosed with hypogonadism, had structural gynecological anomalies, were amenorrheic, and were on hormonal replacement therapy were excluded.

An interviewer-administered questionnaire was used to obtain sociodemographic variables and relevant clinical information from recruited participants. Clinical history relating to epilepsy (age at onset, anatomical lateralization, ictal semiology, postictal status, AEDs and duration of use, temporal profile), common cardiovascular risk factors, cognition, behavioral changes, and other comorbidities was obtained. Seizure frequency was ascertained using patients' seizure calendars. Epilepsy was classified into focal, generalized, and combined focal and generalized epilepsies based on the International League Against Epilepsy (ILAE) 2017 epilepsy classification [18]. Detailed history regarding sexuality, menstrual cycle and cycle characteristics, galactorrhea, and duration and details of sexual activity was obtained from cases and controls. A regular menstrual cycle was taken as 21–34 days in duration [19]. The Zung Self-rating Depression Scale was used to assess mood in both cases and controls [20,21]. It is a 20-item self-rating questionnaire. Each question score ranges between 1 and 4. The total score ranges between 20 and 80. Scores greater than 50 were indicative of depression, and those greater than 70 were indicative of severe depression [18].

Using the International 10–20 electrode placement, an alert electroencephalography (EEG) was carried out on all cases and controls using a Phoenix digital 16-channel EEG machine. Epileptiform abnormalities were defined as sharps/spikes with accompanying slow wave complexes that are distinct from normal background activity [22]. The presence and distribution of slow activity – defined as frequencies less than 8 Hz – were also noted. Brain magnetic resonance imaging (preferably) or cranial computed tomography of the cases was obtained.

Sexual dysfunction was defined, according to the Diagnostic and Statistical Manual of Mental Disorders — 5th Edition (DSM-V), as an aberration in sexual desire and arousal, penetration, and female orgasm and required at least 6 months of symptoms before a diagnosis can be made [23]. It was measured using the Arizona Sexual Experience Scale (ASEX) questionnaire. This is a standardized, validated, and reliable five-item rating scale that quantifies sexual interest, arousal, response, and satisfaction. The highest possible score for each question was 6. Higher scores reflected greater SD. A total score between 5 and 30 was determined. Sexual dysfunction was defined as a total score greater than 18 or a score ≥5 on any single item or any three items with individual scores ≥4 [23]. Based on the new DSM-V classification, arousal scores were computed by combining the scores for sex drive and arousal, while orgasm scores were computed by combining the scores for ability to reach orgasm and orgasm satisfaction. [23].

The data obtained were entered into Microsoft Excel for cleaning and subsequently transferred to Statistical Package for the Social Sciences version 22. Pearson's chi-squared or Fisher's exact test (if the expected counts were fewer than five per cell) was used to assess categorical variables. Independent Student's t-test or Wilcoxon rank-sum was used to determine continuous variables. Regression analysis was modelled to assess variables with an independent association with SD in FWE.

Table 1
Sociodemographic characteristics of participants.

	FWE[a] N = 70	Controls N = 70	p-Value
Age in years (mean, SD)	41.7 (19.2)	40.7 (16.8)	0.729
Ethnicity (N, %)			
Hausa	1 (1.4)	2 (2.9)	0.843
Igbo	4 (5.7)	4 (5.7)	
Yoruba	65 (92.9)	64 (91.4)	
Handedness (N, %)			
Left	6 (8.6)	4 (5.7)	0.512
Right	64 (91.4)	66 (94.3)	
Education (N, %)			
Primary	32 (45.7)	8 (11.4)	<0.001*
Secondary	16 (22.9)	16 (21.4)	
Tertiary	19 (27.1)	20 (28.6)	
Postgraduate	3 (4.3)	27 (38.6)	
Monthly income in naira (N, %)			
≤20,000	28 (40.0)	7 (10.0)	<0.001*
20,000–50,000	29 (41.4)	18 (25.7)	
50,000–100,000	9 (12.9)	18 (25.7)	
100,000–200,000	4 (5.7)	13 (18.6)	
>200,000	–	14 (20.0)	
Marital status (N, %)			
Single	58 (82.86)	49 (70.0)	0.003*
Married	12 (17.14)	21 (30.0)	

[a] Females with epilepsy.
* Statistically significant.

3. Results

3.1. Baseline sociodemographics and clinical characteristics

One hundred and forty participants between the ages of 16 and 56 years were recruited into this study comprising seventy controls and seventy FWE. There was no difference in age, ethnicity, and handedness between FWE and controls. Females with epilepsy, however, had poorer education, had a lower monthly income, and were less likely to be married when compared with controls (see Table 1). Clinically, FWE had a higher frequency of cognitive impairment and motor deficits compared with controls ($p < 0.001$). Body mass index was lower but the Zung score was higher among the FWE when compared with controls ($p = 0.006$ and $p < 0.001$, respectively) (see Table 2).

3.2. Seizure characteristics

Out of seventy FWE, 39 (55.7%) were on AEDs, mainly carbamazepine, with 8/39 (20.5%) admitting to poor medication adherence. Thirty-six (51.4%) had not attained seizure control. Twelve (17.2%) had focal epilepsy, 22 (31.4%) had generalized epilepsy, and 36 (51.4%)

Table 2
Clinical characteristics of recruited participants.

	FWE[a]	Controls	Test	p-Value
BMI[b] (mean, SD)	24.3 (4.1)	26.5 (5.3)	2.8	0.006
Zung score (mean, SD)	53.3 (10.0)	44.7 (11.2)	−4.7	<0.001
Cognitive impairment (N, %)	37 (53.6)	3 (4.6)		<0.001
Motor weakness (N, %)	16 (22.9)	–		<0.001
Systolic BP[c] (mean, SD)	126.0 (27.2)	126.7 (27.7)	0.1	0.919
Diastolic BP[c] (mean, SD)	79.8 (14.1)	74.4 (8.1)	−1.5	0.144
Dyslipidemia (N, %)	37 (52.9)	26 (37.1)	3.5	0.062
FBG[d] (mean, SD)	82.1 (24.7)	90.8 (43.8)	−0.4	0.709
MCV[e] (mean, SD)	83.9 (7.0)	82.3 (9.5)	−0.7	0.472
MCHC[f] (mean, SD)	28.4 (2.5)	29.3 (2.6)	1.8	0.070

[a] Females with epilepsy.
[b] BMI: body mass index.
[c] BP: blood pressure.
[d] FBG: fasting blood glucose.
[e] MCV: mean corpuscular volume.
[f] MCHC: mean corpuscular hemoglobin concentration.