Abstract

Objective: During the third wave of COVID-19 in Thailand, researchers aimed to see how people with drug resistant focal epilepsy (DRE) experienced about anxiety, depression, seizure frequency, and quality of life.

Method: At visit-1 (baseline) and visit-2 (1-month follow-up), we asked patients with DRE who visited our Neurology Clinic Phramongkutklao Hospital to complete questionnaires to assess anxiety (Hamilton Anxiety Rating Scale; HAM-A), depression (Patient Health Questionaire-9 Thai version; PHQ-9T), and quality of life (Patient Weighted Quality Of Life in Epilepsy-10; QOLIE-10). In addition, a seizure diary was collected in order to determine seizure frequency.

Result: From July to September 2021, ten individuals with DRE (six males, average age 36.8 years) took part in the study and performed evaluations twice, one month apart. The median monthly seizure frequency was decreased from 3 to 1 after a one-month survey, p=0.072. The HAM-A average and range were increased slightly from 12.0 to 13.6, with a p-value of 0.135. PHQ-9 averages were 6.40 and 6.80, respectively, with a p-value of 0.791. The QOLIE-10T score was lowered from 39.8 to 38.7, with a p-value of 0.800.

Conclusion: The third wave of COVID-19 in Thailand had no effect on the physical or emotional wellbeing of individuals with drug-resistant focal epilepsy.

Keywords: Drug-resistant focal epilepsy, Covid-19, anxiety, HAM-A, depression, PHQ-9T, seizure frequency, quality of life, QOLIE-10 The Impact of Covid-19 on Physical and Mental Health of Patients with Drug-Resistant Focal Epilepsy

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ORIGINAL ARTICLE

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Introduction

Epilepsy is a high prevalent neurological disorder that affects people of all ages and lives all around the world. Patients with epilepsy are three times more fatality rate than the general population.¹ Furthermore, they are 2-3 times more likely than those without epilepsy to have mental disorders, including anxiety and sadness.²⁻⁴ Their bidirectional effects, such psychological issues might increase seizure frequency or severity. As a result, assessing anxiety or depression is critical in epilepsy and should not be overlooked.⁵ According to several previous researches^{3,6}, anxiety affects 28 percent of people. Drug-resistant epilepsy (DRE) has a higher prevalence than epilepsy that is adequately managed.⁷ In two investigations conducted in Thailand, anxiety in epilepsy was shown to be 5.3 percent⁸ and 39 percent.⁹ Female gender, unemployment, focal onset epilepsy, stigma, extended duration of medication resistant epilepsy, and high seizure frequency are all risk factors for anxiety in Thai epilepsy patients.^{10,11}

Since March 2020, the coronavirus disease in 2019 (COVID-19) pandemic has been affecting people's physical and mental health throughout the world. This virus affects not only the respiratory system, but also the nervous system, resulting in anosmia, hygosmia, headaches, altered mental state, and seizures.¹² According to a study from Wuhan, China, COVID-19 seizures account for 0.5 percent of all cases.¹² According to a multicenter survey conducted in Thailand, 0.57 percent of infected people experienced seizures during the first wave.¹³ For mental well-being, according to Huang S, et al. conducted a single center, cross-sectional survey during the first wave of COVID-19 in China, 362 online survey, 31 (8.56)

percent) increased seizure frequency, and one of the risk factors for seizure aggravation was stress.¹⁴ In addition, during the first pandemic, Salari M, et al.¹⁴ conducted a cross-sectional case-control research in Iran to compare the anxiety levels of persons with epilepsy to the general population. 141 epilepsy and 759 general population were evaluated by Beck Anxiety Inventory II-Persian (BAI-II). The results indicated that anxiety was present in 54.6 percent of epilepsy patients, which was similar to the general population, while severe anxiety was present in 13.5 percent of epilepsy patients, compared to 6.9 percent in the general population (p=0.009).¹⁵ There is evidence that the incidence of psychological problems in epilepsy during pandemics, including anxiety and depression, is significant and has an impact on quality of life, particularly in drug-resistant epilepsy.^{16,17} A study, however, found no link between COVID-19 and seizure frequency.¹⁸

The data presented above is from various nations, with the majority of it collected during the first wave of the epidemic. As a result, we set out to investigate the influence of physical and mental health on the third wave and drug-resistant patients in Thailand.

Method of the study

Objective

The objectives of the study were to assess anxiety, sadness, quality of life, and seizure frequency among drug-resistant epilepsy patients in Thailand during the third wave of COVID-19.

Study design and study period

This was a cross-sectional prospectiveobservation research conducted in Thailand from July to September 2021.

Population

Drug-resistant focal epilepsy patients over the age of 20 were invited to participate in the study at our Division of Neurology, Department of Medicine, Phramongkutklao Hospital, Bangkok, Thailand. Drug-resistant epilepsies are defined as individuals who fail to achieve seizure free despite using two anti-seizure medicines, either polytherapy or sequential monotherapy, and adhering to a strict treatment regimen. Patients who refused to fill out questionnaires were excluded.

Evaluation batteries

1) Hamilton Anxiety Rating Scale; HAM-A for anxiety

2 Patient Health Questionaire-9 Thai version; PHQ-9T for depression

3) Patient Weighted Quality Of Life in Epilepsy-10; QOLIE-10 for quality of life

4) Seizure diary for the 1-month seizure frequency

Statistical analysis and ethical consideration

The discrete value was presented in number and percent, whereas the continuous number was in mean and standard deviation. A paired sample t-test was used to determine the difference between one month HAM-A, PHQ-9, QOLIE-10, and monthly seizure frequency. Wilcoxon-Singed Rank test was used for comparing non-parametric variables. The statistical significance difference is *p*-value 0.05. This research is part of an ongoing single-center investigation, looking at the use of etifoxine as an adjuvant therapy in patients with medically refractory focal epilepsy and concomitant anxiety symptoms (The ETIFOXs trial). The local ethic committee approval number was Q020h/63.

Result

We invited ten patients with DRE to assess during the third wave of the COVID-19 pandemic in Thailand, from July to September 2021. The surveys were completed again, one month apart. Six of the patients were men (60 percent). The average age was 36.8 years. They all denied having used alcoholic beverages, smoked, or used illegal drugs in the past. Their adherence to anti-seizure medication was excellent. The average age at the beginning of the first seizure was 21.4 years old. Epilepsy has been present for an average of 21.0 years. The preceding month's median seizure frequency was three times. Table 1 shows the baseline features in further detail.

Table 1Baseline characteristics

Baseline characteristics		Number
Age (year, mean ± SD, range)		36.8 ± 12.7 (23 - 65)
Male		6 (60%)
Age onset of epilepsy		15.8 ± 11.2 (10 - 31)
(year, mean ± SD, range)		
Duration of epilepsy		16.22 ± 11.8 (5 - 35)
(year, mean ± SD, range)		
Median frequency of seizure		3 (1-15)
(time/month)		
Number of anti-seizure medication	1	3 (30 %)
	2	4 (40%)
	3	2 (20 %)
	4	1 (10%)
Number of mood stabilizers	0	5 (50 %)
	1	4 (40 %)
	3	1 (10 %)

Note: SD-standard deviation

The median monthly seizure frequency was lowered from 3 to 1 after a one-month study. The HAM-A average and range increased slightly from 10.44 (6-17) to 11.33 (2-24), respectively, indicating a shift from mild to moderate anxiety, *p*-value of 20

0.859. From baseline to one month, the average and range of PHQ-9 were the same [6.22 (1-15) and 6.44 (1-18)], indicating no mild-to-moderate depression, *p*-value of 0.609. The QOLIE-10T score was lowered slightly from 41.33 to 40.79, and all

patients had a QOLIE score of more than 25, indicating poor quality of life, *p*-value of 0.622. There was no statistically significant difference between the four results. Table 2 contains the specifics.

 Table 2
 The change of seizure frequency, anxiety, depression and quality of life

Variable	Baseline	1-month	<i>p</i> -value
Seizure frequency (time/month)	3 (1-15)	1 (0-21)	0.072 ⁰
1-2 times/month	3 (30%)	8 (80%))	
3 or more time/month	7 (70%)	2 (20%)	
HAM-A(mean ± SD range)	12.0 ± 6.4 [6-28]	13.6± 10.6[2-34]	0.135
0 (no anxiety): number (%)	0	0	
1-17 (mild anxiety symptom): number (%)	9 (90%)	6 (60%)	
18-56 (moderate-to-severe anxiety symptom)	1 (10%)	4 (40%)	
PHQ-9T(mean ± SD, range)	6.40 ± 4.2 [1-15]	6.80 ± 5.3 [1-18]	0.791
0-4 (no depressive symptom): number (%)	4 (40%)	4 (40%)	
5-9 (mild depressive symptom): number (%)	4 (40%)	3 (30%)	
10-27 (moderate to severe depressive symptom)	2 (20%)	3 (30%)	
QOLIE-10T (mean ± SD, range)	39.8 ± 78.6 [26-53]	38.7 ± 4.5 [20-54]	0.800
QOLIE-10T ≤25 (good QoL)	0	1 (10%)	
QOLIE-10T > 25 (poor QoL)	10 (100%)	9 (90%)	

^θWilcoxson Singed rank test, QoL-quality of life

Discussion

Our findings, which were comparable to other researches^{14,18}, indicated a non-significant change in one-month anxiety (HAM-A) score during the third wave of COVI-19 in Thailand. All were mildly anxious before the third wave, but 30 percent had later developed moderate-to-severe anxiety, with a *p*-value of 0.135. According to the Mehri S, et al. research¹⁴, 54.6 percent experienced mild anxiety, 25.5 percent had moderate anxiety. A research conducted by Burcin A, et al.¹⁸, 70.2 percent of epilepsy patients had moderate anxiety.

The majority of our patients, 80%, had no to mild symptoms of depression. The score almost

stayed consistent after one month with the third wave. Based on a PHQ-9 score of less than 10, Shanshan H, et al.¹⁵ discovered that 87 percent of people did not have depression. In addition, Xiaoting H, et al.¹⁶ discovered that epilepsy individuals had a significantly greater level of psychological distress than non-epileptic patients, 13.3 versus 1.6, respectively, p 0.001.

Our cohort's quality of life was low, but the score did not change over the COVID-19 era in Thailand, comparable to Helmstaedter C, et al.²⁹ and Burcin A, et al.¹⁸. In contrast to Zeynep BG, et al.¹⁷, they stated that during the COVD-19 pandemic, quality of life was affected, and that multivariate analysis revealed that this was attributable to a greater chance of seizure recurrence.

Our study had two limitations: 1) a limited number of participants who following the stay-at-home protocol, so the patients who were able to complete all of the questionnaires at our hospital may differ from those who stayed at home or declined to participate, and 2) a very short time of follow-up. Furthermore, the lack of significance of COVID-19's impacts on our drug-resistant epilepsy might be attributable to the fact that this would be the third wave, when many individuals had already acclimated to the event better than the first and second waves. Further research with a greater number of participants and a longer follow-up period, according to the authors, is warranted.

Conclusion

In Thailand, the third wave of COVID-19 has had no effect on the physical or emotional wellbeing of individuals with drug-resistant focal epilepsy. However, adequate psychological counseling and a pandemic effectively managing will be necessary to maintain quality of life.

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