Anxiety and Depression in Thai Epileptic Patients

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Objective: *To study the prevalence of depression and anxiety in Thai epileptic patients at Songklanagarind Hospital, a tertiary care center in the South of Thailand.*

Material and Method: *One hundred and twenty six patients were included in the present study. A HADS questionnaire and demographics data were used for data collection in the present cross-sectional study.*

Results: *Thirty-nine percent of the respondents had anxiety and 20% had depression. Predictors of anxiety by univariate analysis were being female (p = 0.033) and seizure frequency (p = 0.001). Predictors of depression were seizure frequency (p = 0.001) and a history of trauma associated with seizure activity (p = 0.005). Age, type of seizure, amount of medication, duration of disease, socioeconomic status, occupation, education level, and marital status were not predictors of depression or anxiety.*

Conclusion: *There is a high prevalence of depression and anxiety in Thai epileptics. Risk factors for depression are seizure frequency and history of trauma while for anxiety they are gender and frequency of seizure.*

Keywords: *Depression, Anxiety, Epilepsy, Prevalence*

Extensive studies have been made on the psychological aspects of neurological disease especially epilepsy[1-4]. Depression and anxiety is more often seen in epileptics than the general population[5]. The prevalence of depression in epileptic patients is reported to be about 20-55%[6,7] with some secondary care centers reporting the prevalence of anxiety symptoms may exceed 50%[8]. Anxiety and depression is associated with both the quality of life[9] and increased healthcare costs of epilepsy[10]. However, most epileptic patients are not properly diagnosed in clinical practice[11] and subsequently are not treated[12].

In 1983, Zigmond and Snaith developed the Hospital Anxiety and Depression Scale (HADS). HADS is easy to use and suitable for screening in situations where time is limited. HADS has been shown to correlate strongly with other scales for depression diagnosis rating[13] and has been validated in several studies[14,15]. In recent studies, HADS was used for detecting depression and anxiety in people with epilepsy[16-18].

The authors' objectives in the present study were to identify the prevalence of anxiety and depression in Thai epileptic patients and search for a relationship between anxiety, depression, and other clinical variable. For this the authors analyzed the HADS in dependence of 1) age, 2) sex, 3) duration of epilepsy, 4) education, 5) socio economic status, 6) occupation 7) marital status, 8) seizure frequency, 9) history of trauma due to seizure activity, 10) seizure type, and 11) medication, to identify any factor associated with depression and anxiety. Songklanagarind Hospital, the principle referral center of South of Thailand was used as the setting for the present study.

Material and Method
Subjects

The present study enrolled 126 chronic epilepsy patients during the present study. The inclusion criteria were that they were between 15 and 50 years old; had been treated with antiepileptic drug(s) for more than six months in the General Medical and Neurological Clinic at Songklanagarind Hospital; could read and comprehend the questions; had no chronic medical illness other than epilepsy; and did not take medication

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except antiepileptic drug(s) and nutritional supplements (including vitamins). The exclusion criteria included pregnant women; people who could not read Thai and were not conversant with the Thai language; who had significant disabilities such as mental retardation, ataxia, paresis, and other motor disabilities; learning disability through, a language disorder, hearing and visual impairment; a psychosis or psychiatric disease; and significant medical disorder except epilepsy. The terminology used was that defined according to the International League against Epilepsy classification for seizure and epileptic syndrome[19].

Procedure

All the subjects completed a self-report questionnaire for anxiety and depression (HADS), age, sex, education level, socioeconomic status, marital status, seizure frequency, trauma due to seizure activity, duration of epilepsy and medication. This questionnaire was completed in one session. The variables from the patients were checked with family members by independent interviews and from their medical records.

Hospital anxiety and Depression scale

HADS is easy to use and appropriate for screening in situations of limited time. It has been shown to correlate significantly with other scales for depression diagnosis rating[13] and has been validated in several studies[13-15]. In recent studies, HADS was used for detecting depression and anxiety in people with epilepsy[16-18]. Nilchaikovit T et al[20] have translated the HADS into a Thai version. The HADS contains 14 items with a four-point response set.

The result of the present study showed that the Thai HADS had a good reliability and validity. Both sub-scales also showed good internal consistencies when using Cronbach's Alpha coefficient of 0.8551 for the anxiety subscale and 0.8259 for the depression subscale. The sensitivity of the anxiety and depression sub-scales of the Thai HADS were 100% and 85.71% respectively, specificities were 86.0% for anxiety and 91.3% for depression.

The Ethics Review Committee of the Department of Medicine approved the present study and the Informed consent was sought from all patients.

Statistical analysis

The data were analysis with the Statistical package for Social Science (SPSS) for window (version 12.0). The continuous data was assessed by mean range and standard deviation. The category data was measured by number and percent. The effect of the HADs scores on the clinical variables used logistic regression and risk factor depending on the data distribution (The Fisher's Exact test for count data). The association between variables was analyzed using the chi-square test for the category variables that could be grouped by class, while Pearson's correlation coefficients were computed to evaluate the association between dependent and independent variable, and those showing a significant relationship. A p-values < 0.05 were considered statistically significant.

Results

One hundred and twenty-six participants completed the questionnaires and demographic data (62 male and 64 female). There were 80 patients on monotherapy and 46 on polytherapy. Over the last previous year before the study, 38 patients had no epileptic seizure. Forty-nine patients had universal coverage for payment.

The patients having no anxiety in 61.02% of the respondents, 24.58% were borderline cases and 14.40% had clinical anxiety. In the same population, 79.66% were identified as having no depression, 15.25% were borderline cases, and 5.09% clinically depressed. Of the patients, 16 had both anxiety and depression. The mean age of both the depression and anxiety patients was 32 years. The majority of depression and anxiety sufferers were female.

Table 1, summarizes the demographic data; and depression and anxiety. Univariate analysis demonstrated that the variables significantly associated with an increased risk of developing an anxiety disorder included the female sex (p = 0.033) and the frequency of seizure activity (p = 0.001). The other variables age, duration of epilepsy, education, socioeconomic status, occupation, marital status, history of trauma due to seizure activity, seizure type, and amount of medications showed no significant association with anxiety. Variables significantly associated with development of a depression disorder included: frequency of seizure activity (p = 0.001) and a history of trauma due to seizure activity (p = 0.005). Age, sex, duration of epilepsy, education, socioeconomic, occupation, marital status, seizure type, and amount of medication showed no significant association with depression.

Discussion

Depression and anxiety is a recognized burden in epileptic patients[21,22]. However, the present study

Table 1. Demographic data and descriptive statistics for risk factors of depressive and anxiety disorders

Variable	Depression (n = 50)		p-value	Anxiety (n = 50)		p-value
	Depression	No depression		Anxiety	No anxiety	
1. Age (%)						
≤ 30 year	25.5	74.5	0.26	38.9	61.1	0.82
> 30 year	19.4	80.6		38.8	61.2	
2. Sex(%)						
Male	22.6	77.4	0.99	27.4	72.6	0.033
Female	21.9	78.1		50.0	50.0	
3. Duration of epilepsy (%)						
≤ 15 years	21.6	78.4	0.26	39.6	60.4	0.54
> 15 years	40.0	60.0		40.0	60.0	
4. Education (%)						
Primary school	28.6	71.4	0.93	39.3	60.7	0.93
Secondary school	21.4	78.6		42.9	57.1	
High school	22.2	77.8		41.7	58.3	
Bachelor degree	21.9	78.1		40.6	59.4	
Post graduate study	0.0	100.0		33.3	66.7	
No education	0.0	100.0		0	100.0	
Other	28.6	71.4		42.9	57.1	
5. Social economic state (%)						
Universal coverage (UC)	26.5	73.5	0.85	40.8	59.2	0.65
Government officer	21.5	78.5		42.9	57.1	
Self financing	20.6	79.4		32.4	67.6	
UC's PSU student	25.0	75.0		25.0	75.0	
Patient under the patronage of H.R.H Crown Prince Maha Vajiralongkorn	50.0	50.0		100.0	0	
Social security	0	100.0		33.3	66.7	
6. Occupation (%)						
Full-time	21.2	78.8	0.69	42.5	57.5	0.95
Part-time	0	100.0		33.3	66.7	
Trainee	0	100.0		0.0	100.0	
Unemployed	16.7	83.3		33.3	66.7	
Student	18.8	81.2		31.2	68.8	
No job/retired	35.3	64.7		41.2	58.8	
Other	33.3	66.7		0	100.0	
7. Marital Status (%)						
Single	22.2	77.8	0.46	34.7	65.3	0.83
Married	24.5	75.5		44.9	55.1	
Divorced	0	100		33.3	66.7	
Other	0	100		0	100.0	
8. Seizure frequency (%)						
No seizure activity	13.2	86.8	0.001	18.4	81.6	0.001
1-12/year	12.8	87.2		38.5	61.5	
>1/month or >12/year	26.9	73.1		46.2	53.8	
>1/week or >4/month	69.2	30.8		69.2	30.8	
>1 a day or >1/week	28.6	71.4		71.4	28.6	
9. History of trauma association with seizure (%)						
Yes	33.8	66.2	0.005	44.1	55.9	0.08
No	9.1	90.9		32.7	67.3	
10. Medication (%)						
Monotherapy	17.3	82.7	0.76	38.7	61.3	0.26
Polytherapy	28.3	71.7		37.0	63.0	
11. Seizure type						
Partial epilepsy	37.9	62.1	0.97	35.3	64.7	0.92
Generalized	30.7	69.3		28.3	71.7	
Unclassification	31.4	68.6		36.4	63.6	

is not the first study to confirm a high prevalence of depression and anxiety in epilepsy. In other studies, the prevalence of anxiety and depression vary by population and measurement questionnaire. In a community based population, Ettinger A *et al* used the Center for Epidemiology Studies Depression Scale to study depression in 775 epileptic patients, 395 asthmatic patients and 362 health controls in a community-based setting. Their study showed higher rates of depression in the epileptic group (36.5%) than in those of the asthma (27.8%) and health control groups (11.8%)[7]. Again Mensah SA *et al* studied a community population using the hospital anxiety and depression scales (HADS) and reported the prevalence of depression in epilepsy as being 12.2%[18]. The university hospital based study by Jones *et al* reported the prevalence of depression as 17.3%[23]. In Thai epileptic patients, to the best of our knowledge the only study about depression in Thai epileptic patients was from Nidhinandana S *et al*[24], they studied in 60 epileptic patients and found a prevalence of depression about 38.3%, but no focus on anxiety. Although, the instrument used in their study was Thai geriatric depressive scale which is suitable for age 60-70 but in the present study included age 18 or older and the population of the present study was lack of example no identification of other medication, medication which interferes with depression. The present study had a strict inclusion and exclusion criteria e.g. excluding other medication and significant medical illness that affect mood. The presented instrument questionnaire is hospital anxiety and depression scale, which does not depend on age. Finally, the authors analyzed more demographic data and seizure characteristics to study depression and anxiety in Thai epileptic patients. The result showed a prevalence of depression and anxiety at about 39% for depression and 20% for anxiety.

The risk factors for anxiety in the present study were being female and having a high frequency of seizure activity. Seizure frequency has been linked with severity of anxiety in some[16] but not all studies[25]. The degree of anxiety is disassociated from seizure frequency in that, it is the individual's perception of danger. Finally, in the present study, a history of trauma due to seizure activity was not associated with anxiety. The factors that were associated with depression are seizure frequency and history of trauma. Age, sex, duration of epilepsy, education, socioeconomic status, occupation, marital status, type of seizure, and frequency of seizure were not associated with depression.

There is limited research examining the relationship between depression and seizure frequency because of cross-sectional designs do not allow for testing the direction of influence[16,17,26]. Existing longitudinal studies have focused on whether depression precedes the onset of epilepsy and found that depression may be a risk factor for epilepsy[27]. Thapar A *et al* studied a community-based sample of adults with active epilepsy focused on relation between depression symptom score and seizure frequency at two time points, 1 year apart. They found depression scores and seizure frequency were significant predictors of each other[28]. Antidepressant treatment of depression improves seizure control[29]. Today the most important aim for treatment of epilepsy is improving the quality of life. Depression and anxiety are an independent factor for low quality of life in many studies[4,25,30-32], increased suicidal risk[33] and impact on costs and use of medical services[34].

Conclusion

Psychiatric symptoms, especially depression and anxiety, are found to be more common in epilepsy and affect its management. In clinical practice, physicians must look for this symptom with an adequate measurement questionnaire.

References

1. Kanner AM, Palac S. Depression in epilepsy: a common but often unrecognized comorbid malady. Epilepsy Behav 2000; 1: 37-51.
2. Kanner AM. Depression in epilepsy: prevalence, clinical semiology, pathogenic mechanisms, and treatment. Biol Psychiatry 2003; 54: 388-98.
3. Adewuya AO, Ola BA. Prevalence of and risk factors for anxiety and depressive disorders in Nigerian adolescents with epilepsy. Epilepsy Behav 2005; 6: 342-7.
4. Johnson EK, Jones JE, Seidenberg M, Hermann BP. The relative impact of anxiety, depression, and clinical seizure features on health-related quality of life in epilepsy. Epilepsia 2004; 45: 544-50.
5. Beyenburg S, Mitchell AJ, Schmidt D, Elger CE, Reuber M. Anxiety in patients with epilepsy: systematic review and suggestions for clinical management. Epilepsy Behav 2005; 7: 161-71.
6. Hermann BP, Seidenberg M, Bell B. Psychiatric comorbidity in chronic epilepsy: identification, consequences, and treatment of major depression. Epilepsia 2000; 41(Suppl 2): S31-41.
7. Ettinger A, Reed M, Cramer J. Depression and

comorbidity in community-based patients with epilepsy or asthma. Neurology 2004; 63: 1008-14.

8. Jones JE, Hermann BP, Barry JJ, Gilliam F, Kanner AM, Meador KJ. Clinical assessment of axis I psychiatric morbidity in chronic epilepsy: a multicenter investigation. J Neuropsychiatry Clin Neurosci 2005; 17: 172-9.

9. Perrine K, Hermann BP, Meador KJ, Vickrey BG, Cramer JA, Hays RD, et al. The relationship of neuropsychological functioning to quality of life in epilepsy. Arch Neurol 1995; 52: 997-1003.

10. Cramer JA, Blum D, Fanning K, Reed M. The impact of comorbid depression on health resource utilization in a community sample of people with epilepsy. Epilepsy Behav 2004; 5: 337-42.

11. Gilliam FG, Santos J, Vahle V, Carter J, Brown K, Hecimovic H. Depression in epilepsy: ignoring clinical expression of neuronal network dysfunction? Epilepsia 2004; 45(Suppl 2): 28-33.

12. Boylan LS, Flint LA, Labovitz DL, Jackson SC, Starner K, Devinsky O. Depression but not seizure frequency predicts quality of life in treatment-resistant epilepsy. Neurology 2004; 62: 258-61.

13. Aben I, Verhey F, Lousberg R, Lodder J, Honig A. Validity of the beck depression inventory, hospital anxiety and depression scale, SCL-90, and hamilton depression rating scale as screening instruments for depression in stroke patients. Psychosomatics 2002; 43: 386-93.

14. Lewis G, Wessely S. Comparison of the general health questionnaire and the hospital anxiety and depression scale. Br J Psychiatry 1990; 157: 860-4.

15. Kuijpers PM, Denollet J, Lousberg R, Wellens HJ, Crijns H, Honig A. Validity of the hospital anxiety and depression scale for use with patients with noncardiac chest pain. Psychosomatics 2003; 44: 329-35.

16. Jacoby A, Baker GA, Steen N, Potts P, Chadwick DW. The clinical course of epilepsy and its psychosocial correlates: findings from a U.K. Community study. Epilepsia 1996; 37: 148-61.

17. O'Donoghue MF, Goodridge DM, Redhead K, Sander JW, Duncan JS. Assessing the psychosocial consequences of epilepsy: a community-based study. Br J Gen Pract 1999; 49: 211-4.

18. Mensah SA, Beavis JM, Thapar AK, Kerr M. The presence and clinical implications of depression in a community population of adults with epilepsy. Epilepsy Behav 2006; 8: 213-9.

19. Commission on Classification and Terminology of the International League Against Epilepsy. Proposal for revised classification of epilepsies and epileptic syndromes. Epilepsia 1989; 30: 389-99.

20. Nilchaikovit T, Lotrakul M, Phisansuthidth U. Development of Thai version of hospital anxiety and depression scale in cancer patients. J Psychiatr Assoc Thai 1996; 41: 18-30.

21. de Souza EA, Salgado PC. A psychosocial view of anxiety and depression in epilepsy. Epilepsy Behav 2006; 8: 232-8.

22. Kobau R, Gilliam F, Thurman DJ. Prevalence of self-reported epilepsy or seizure disorder and its associations with self-reported depression and anxiety: results from the 2004 HealthStyles Survey. Epilepsia 2006; 47: 1915-21.

23. Jones JE, Hermann BP, Woodard JL, Barry JJ, Gilliam F, Kanner AM, et al. Screening for major depression in epilepsy with common self-report depression inventories. Epilepsia 2005; 46: 731-5.

24. Nidhinandana S, Chinvarun Y, Sithinamsuwan P, Udommongkol C, Suwantamee J, Wongmek W, et al. Prevalence of depression among epileptic patients at Pramongkutklao Hospital. J Med Assoc Thai 2007; 90: 32-6.

25. Choi-Kwon S, Chung C, Kim H, Lee S, Yoon S, Kho H, et al. Factors affecting the quality of life in patients with epilepsy in Seoul, South Korea. Acta Neurol Scand 2003; 108: 428-34.

26. Ridsdale L, Robins D, Fitzgerald A, Jeffery S, McGee L. Epilepsy in general practice: patients' psychological symptoms and their perception of stigma. Br J Gen Pract 1996; 46: 365-6.

27. Hesdorffer DC, Hauser WA, Annegers JF, Cascino G. Major depression is a risk factor for seizures in older adults. Ann Neurol 2000; 47: 246-9.

28. Thapar A, Roland M, Harold G. Do depression symptoms predict seizure frequency - or vice versa? J Psychosom Res 2005; 59: 269-74.

29. Ojemann LM, Friel PN, Trejo WJ, Dudley DL. Effect of doxepin on seizure frequency in depressed epileptic patients. Neurology 1983; 33: 646-8.

30. Senol V, Soyuer F, Arman F, Ozturk A. Influence of fatigue, depression, and demographic, socioeconomic, and clinical variables on quality of life of patients with epilepsy. Epilepsy Behav 2007; 10: 96-104.

31. Meldolesi GN, Picardi A, Quarato PP, Grammaldo LG, Esposito V, Mascia A, et al. Factors associated with generic and disease-specific quality of life in temporal lobe epilepsy. Epilepsy Res 2006; 69: 135-46.

32. Yong L, Chengye J, Jiong Q. Factors affecting the

quality of life in childhood epilepsy in China. Acta Neurol Scand 2006; 113: 167-73.

33. Kanner AM, Soto A, Gross-Kanner H. Prevalence and clinical characteristics of postictal psychiatric symptoms in partial epilepsy. Neurology 2004; 62: 708-13.

34. Cramer JA, Blum D, Reed M, Fanning K. The influence of comorbid depression on quality of life for people with epilepsy. Epilepsy Behav 2003; 4: 515-21.

ภาวะวิตกกังวลและภาวะซึมเศร้าในผู้ป่วยไทยที่เป็นลมชัก

คณิตพงษ์ ปราบพาล, สุวรรณา เศรษฐวัชราวานิช, พรชัย สถิรปัญญา, กิตติ ลิ่มอภิชาต

วัตถุประสงค์: เพื่อศึกษาความชุกของภาวะวิตกกังวลและภาวะซึมเศร้าในผู้ป่วยไทยที่เป็นลมชักในโรงพยาบาลสงขลานครินทร์

วัสดุและวิธีการ: ใช้แบบสอบถามชื่อ hospital anxiety depression score (HARDS) และเก็บข้อมูลส่วนบุคคลทั่วไปรวมถึงรายละเอียดของการเป็นลมชัก ในผู้ป่วยที่เป็นลมชักทั้งหมด 126 คน

ผลการศึกษา: คะแนนจากแบบสอบถาม HARDS พบว่ามีภาวะวิตกกังวลร้อยละ 39 และภาวะซึมเศร้ามีร้อยละ 20 ปัจจัยที่เกี่ยวข้องกับภาวะวิตกกังวลได้แก่ เพศหญิง (p = 0.033) และ ความถี่ของการชัก (p = 0.001) ปัจจัยที่เกี่ยวข้องกับภาวะซึมเศร้าได้แก่ ความถี่ของการชัก (p = 0.001) และประวัติของการเกิดอุบัติเหตุที่เกี่ยวข้องกับการชัก (p = 0.005) ส่วนอายุ จำนวนของยากันชัก ระยะเวลาที่เป็นลมชัก สถานะทางเศรษฐกิจ อาชีพการงาน ระดับการศึกษา ชนิดของการชัก และสถานภาพการสมรส ไม่เป็นปัจจัยที่เกี่ยวข้องกับการเกิดภาวะวิตกกังวลหรือภาวะซึมเศร้า

สรุป: ความชุกของการเกิดภาวะซึมเศร้าและภาวะวิตกกังวลในผู้ป่วยที่เป็นลมชักในระยะยาวมีค่อนข้างสูง ปัจจัยที่เกี่ยวข้องของการเกิดภาวะวิตกกังวล ได้แก่ ความถี่ของการเกิดการชัก และเพศหญิง ส่วนที่เกี่ยวข้องกับภาวะซึมเศร้าได้แก่ ความถี่ของการชักและประวัติการเกิดอุบัติเหตุที่เกิดจากการชัก