

SUICIDAL IDEATION AND THOUGHTS OF DEATH IN EPILEPSY PATIENTS

Nataša Loga Andrijić¹, Azra Alajbegović¹, Svjetlana Loga Zec² & Slobodan Loga³

¹Department of Neurology, Clinical Center University of Sarajevo,
Sarajevo, Bosnia and Herzegovina

²Institute of Pharmacology, Clinical Pharmacology and Toxicology, Faculty of Medicine,
University of Sarajevo, Sarajevo, Bosnia and Herzegovina

³Academy of Sciences and Arts of Bosnia and Herzegovina, Sarajevo, Bosnia and Herzegovina

received: 14.8.2013;

revised: 7.1.2014;

accepted: 28.1.2014

SUMMARY

Background: Suicidal behavior is an important worldwide health problem. Psychiatric disorders, especially mood disorders, are the main risk factors for suicidal behavior. Suicide is an important cause of death in patients with epilepsy. The aim of this study was to analyze the presence of suicidal ideation in patients with epilepsy.

Subjects and methods: The study included 50 epilepsy inpatients and outpatients of both genders, aged 18 years and older, treated at the Department of Neurology, Clinical Center University of Sarajevo in the period from 1st of April – October 1st 2007. The sample was selected randomly. Applied research instruments were general questionnaire, HAM-D-17, BHS and BSS.

Results: Suicidal ideation and thoughts of death were present in 38% epilepsy patients. Symptoms of depression as well as feelings of hopelessness were found in half of the participants (52% and 48%), and were significantly more common in epilepsy patients with suicidal ideation. There was a significant relation of suicidal ideation with the presence of chronic pain (3.86; $p=0.49$), sexual/physical abuse history (5.95, $p=0.015$), level of hopelessness (20.7; $p=0.000$) and severity of depression (14.48; $p=0.000$) in epilepsy patients. Multiple logistic regression analysis showed that unemployment (Exp(B) 33.9; $p=0.007$) and the level of hopelessness (Exp(B) 14.9; $p=0.001$) were independently related to suicidal ideation in these patients.

Conclusions: The study has shown that the level of hopelessness and unemployment have a predictive value for appearance of suicidal ideation in epilepsy patients. In the prediction of suicidal ideation in this population of patients, there is no single variable that should be considered as specific and separate.

Key words: suicidal ideation – epilepsy – depression – hopelessness

* * * * *

INTRODUCTION

Suicidal behavior is an important worldwide health problem and consists of a wide spectrum of self-destructive behavior including suicidal ideation, suicide attempts and suicide itself. Suicidal ideation is a medical term for thoughts, wishes and plans intended to result in suicide (Gliatto & Rai 1999) and can vary from passive ideas to ideas with detailed planning and intent on committing suicide.

Psychiatric disorders, especially mood disorders, are the main risk factors for suicidal behavior. Suicide is more common in patients with depression, alcohol or other psychoactive substance abuse, schizophrenia, personality disorder, epilepsy and chronic pain diseases (Loga 1999).

Suicide is an important cause of death in patients with epilepsy and the significance of epilepsy as a suicide risk factor varies in available studies. Suicide is present as a cause of death in 11% of patients with epilepsy which is significantly more than the rate of suicide in the general population of the USA (1.5%; 11.6/100 000) (Jones et al. 2003). The available literature shows that suicide rates in patients with epilepsy

can vary from 0.7% to 24% (Jones et al. 2003, Robertson 1997).

The aim of this study was to analyze the presence of suicidal ideation in patients with epilepsy.

SUBJECTS AND METHODS

Subjects

The study included 50 epilepsy patients selected randomly. The inpatients and outpatients who were examined had to meet the following criteria: to have a clinically established diagnosis of epilepsy, to have been treated at the Department of Neurology CCUS in the period from April 1st 2007 until October 1st 2007, to be older than 18 years of age, of both genders, and to have given signed voluntary consent to participate in the research.

The protocol of this study was approved by the Ethics Committee of the Clinical Center of the University of Sarajevo and was carried out in accordance with the ethical standards laid down in the Declaration of Helsinki. All patients were voluntarily admitted and gave an informed consent.

Methods

Applied research instruments were: general questionnaire, constructed for the purposes of this study, Hamilton Rating Scale for Depression, 17-items version (HAM-D-17) (Hamilton 1960), The Beck Hopelessness Scale (BHS) (Beck et al. 1974) and the Beck Scale for Suicide Ideation (BSS) (Beck et al. 1988).

All patients were administered a questionnaire to obtain information on the demographic and clinical characteristics of the patients, as well as questions for the assessment of suicide risk. Demographic variables (age, gender, marital status, level of education, employment status) and clinical characteristics of patients including types of seizures, age of onset, presence of chronic pain and used medications were collected. Suicide risk assessment included: the presence of a mental disorder, psychoactive substance abuse, recent stressful life events, sexual/physical abuse history, family history of suicide, and the level of social support. Depression was evaluated and confirmed by HAM-D-17. Finally, all respondents were tested using the self-administered BHS and BSS scales. By application of these tests, two groups of patients were formed: the first (experimental) group of epilepsy patients with suicidal thoughts, and the second (control) group of epilepsy patients without suicidal thoughts.

Statistical analysis

Statistical analyses were conducted using SPSS computer software for statistical analysis, version 16.0. Results are presented in charts as a percentage, absolute value, odds ratio with corresponding 95% confidence intervals and the mean value (\bar{x}) with standard deviation (SD). For the analysis of categorical variables the chi-square test was used. Multiple logistic regression analysis was used to determine the predictive value of each variable on the outcome of the dependent variable (suicidal ideation). $P < 0.05$ was considered as statistically significant.

RESULTS

In the sample there were 25 (50%) male and 25 (50%) female patients, with mean age of 38.6 ± 2.2 years, mostly single (56%) and 48% of them had graduated from the high school. The average age at onset of epilepsy was 20.5 ± 1.8 years. In this study only 22% of the patients with epilepsy were employed, while 52% were unemployed and 26% retired. Most of the patients had had a tonic-clonic seizure (60%), and conventional antiepileptic drugs (AEDs) were used more (68%) than the new AEDs.

Suicidal ideation and thoughts of death were present in 19 (38%) epilepsy patients; (95% CI, 24.55-51.45) (experimental group), while 31 (62%) subjects did not report suicidal ideation (control group) (Figure 1). Active suicidal ideation were present in 7 (14%) patients. Almost one fifth of the patients (18%) had made previous

suicide attempts, whereas 6 (12%) had made one suicide attempt and 3 (6%) had made two or more.

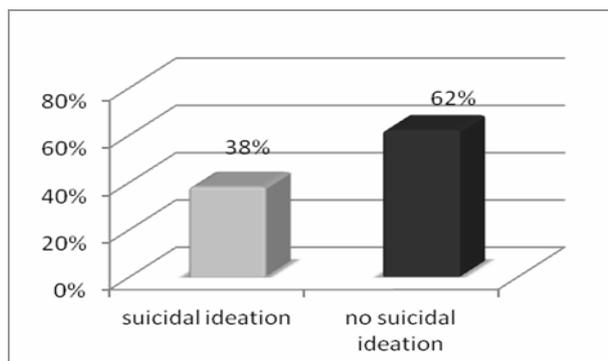


Figure 1. Suicidal ideation in epilepsy patients

There was no significant relationship of the demographic characteristics with suicidal ideation. Also, there was no significant relationship of seizure types, age at onset of epilepsy or different AEDs treatment with suicidal ideation.

Patients who endorsed suicidal ideation were significantly more physically or sexually abused compared to patients without suicidal ideation ($\chi^2=8.9$, $p < 0.5$).

The level of hopelessness was measured using the Beck Hopelessness Scale (BHS) and the study showed that 24 (48%) of the patients endorsed feeling hopeless (95% CI, 35.15-61.85). Hopelessness was significantly higher among patients in the experimental group ($n=16$; 84.2%) (95% CI, 67.8-100.6) compared to patients in the control group ($n=8$; 25.8%) (95% CI, 10.4-41.2) ($p < 0.01$) (Figure 2).

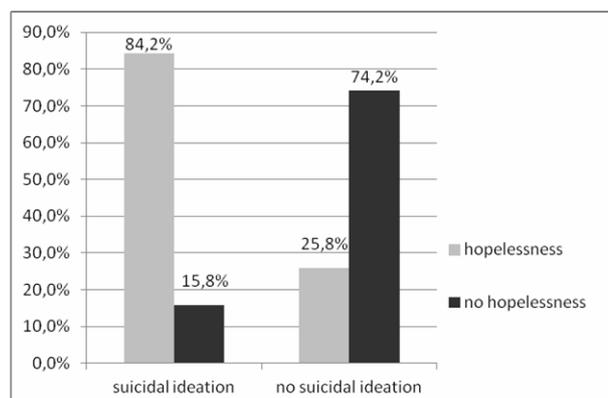


Figure 2. Hopelessness in epilepsy patients related to the endorsement of suicidal ideation

Depression was present in 26 (52%) patients with epilepsy; (95% CI, 38.15-65.85). Symptoms of depression were significantly more common in patients with suicidal ideation ($n=14$; 73.7%) (95% CI, 54.1-93.48) compared to patients in the control group ($n=12$; 38.7%) (95% CI, 21.56-55.6) ($p < 0.05$) (Figure 3).

Univariate regression analysis showed a significant relation of suicidal ideation with the presence of chronic pain (3.86; $p=0.49$), sexual/physical abuse history (5.95, $p=0.015$), level of hopelessness (20.7; $p=0.000$) and

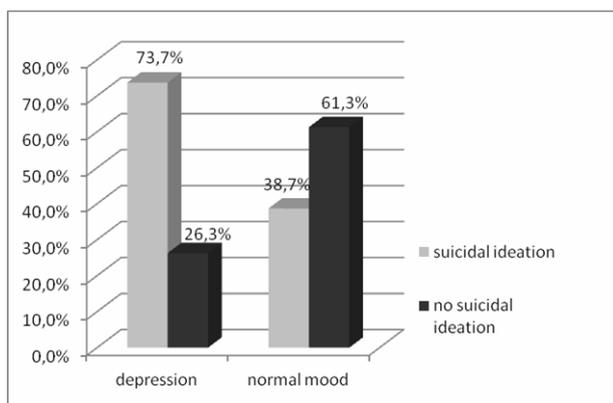


Figure 3. Depression in epilepsy patients related to the endorsement of suicidal ideation

severity of depression (14.48; $p=0.000$) in epilepsy patients (Table 1). Multiple logistic regression analysis showed that unemployment (Exp(B) 33.9; $p=0.007$) and the level of hopelessness (Exp(B) 14.9; $p=0.001$) are independently related to suicidal ideation in these patients (Table 2).

DISCUSSION

This study has shown that suicidal ideation and thoughts of death were present in 38% of patients with epilepsy, whereas 14% of them have had active suicidal ideations. The occurrence of suicidal ideation in this sample is almost identical to the result of 36.7% that was found by Stefanello et al (2010) in a study involving 139 epilepsy patients (Stefanello et al. 2010). Research conducted by Brazilian authors has shown that 18.2% of these patients had made plans to commit suicide, and 12.1% had made suicide attempts.

A survey conducted by Canadian authors has shown that the prevalence of suicidal ideation in patients with epilepsy is two times higher compared to the healthy group (25% vs 13.3%) (Tellez-Zenteno et al. 2007). Hecimovic et al. (2005) reported suicidal ideation in 12% of patients with different types of epilepsy, and symptoms of depression were found in 38% (Hecimovic et al. 2005).

An important variable is the age at onset of epilepsy. The available literature shows that suicidal risk is highest in patients with onset of epilepsy during adolescence (Barraclough 1987, Nilsson et al. 2002, Jones et al. 2003), as well as during the first six months after the diagnosis is made (Christensen et al. 2007). This research has shown that the average age at onset of epilepsy is significantly lower in patients with suicidal ideation compared to patients without suicidal thoughts, but the difference has not shown a statistical significance.

Table 1. Outcomes of a univariate regression analysis predicting suicidal ideation in epilepsy patients

	Score	p
Types of seizures	2.689	0.101
Antiepileptic drugs (AEDs)	0.000	0.993
Gender (female)	0.085	0.771
Age	0.586	0.444
Age at onset of epilepsy	0.496	0.481
Marital status	1.158	0.282
Education status	0.032	0.857
Employment	1.639	0.201
Economic status	3.698	0.054
Pain conditions*	3.861	0.049
Mental disorder	2.568	0.109
Psychoactive substance use	0.897	0.344
Recent stressful life events	0.496	0.481
Sexual/physical abuse history*	5.947	0.015
Family history of suicide	1.266	0.261
Social support	2.526	0.112
Hopelessness (BHS scale)*	20.714	0.000
Depression (HAM-D-17 scale)*	14.478	0.000

* statistically significant values

This study has not shown a significant relationship of suicidal ideation with seizure variables (as seizure types, age of onset, conventional or new AEDs treatment) and the same results were found in a previous similar study (Lim et al. 2010).

There are controversial data as to whether some of the antiepileptics (AEDs) increase the risk of suicidal behavior. Certain (AEDs), particularly GABAergic agents (e.g. vigabatrin, topiramate and phenobarbital) may, according to some reports, cause or exacerbate existing symptoms of depression (Miller et al. 2008). However, this study has not investigated individual AEDs and consequently the potential adverse effects.

Univariate regression analysis used in this study has shown a significant relationship of suicidal ideations with the presence of chronic pain, sexual/physical abuse history, level of hopelessness and severity of depression in patients with epilepsy. The study has shown that a history of previous physical or sexual abuse is significantly related to suicidal ideation. A history of previous abuse is a well-known risk factor for suicidal behavior in the general population (Moscicki 1997).

Other suicide risk factors include different chronic pain syndromes and pain disorders. This study has shown a significant relation of suicidal ideation with the presence of chronic pain in epilepsy patients, which is in accordance with results of other studies proving that chronic pain is an independent suicide risk factor

Table 2. Multivariate regression analysis: independent predictors of suicidal ideations in epilepsy patients

	B	S.E.	Wald	df	Sig.	Exp(B)
Step 3						
Employment	3.522	1.300	7.341	1	0.007	33.858
Hopelessness (BHS scale)	2.703	0.784	11.894	1	0.001	14.920
Constant	-6.635	1.881	12.449	1	0.000	0.001

(Fisher et al. 2001, Ilgen et al. 2008). Jones et al (2003) reported that suicide risk assessment in a population of patients with epilepsy should include a state of complete physical health.

The study has shown that depression is present in 52% of patients with epilepsy, which is in accordance with data presented in the available literature. This result is almost identical to the result found by Boylan et al. (2004) showing that depression is present in 54% of epilepsy patients (Boylan et al. 2004). According to the earlier epidemiological studies, the prevalence of depression in patients with epilepsy is 3-60% compared to 2-4% in the general population (Gilliam et al. 2004). The significance of other psychiatric disorders and symptoms was not evaluated in this study (anxiety, personality disorders, cognitive impairment, etc.).

This study has shown that suicidal ideation in epilepsy patients is independently and significantly related to the level of hopelessness (BHS score) and unemployment as an important psychosocial factor. Of a total number of patients involved in this study, only one-fifth was employed, while the rest were unemployed or retired.

CONCLUSIONS

The results of this study showed that suicidal ideation and thoughts of death were present in 38% of patients with epilepsy. Symptoms of depression as well as feelings of hopelessness were found in half of the participants and were significantly more common in patients with suicidal ideation. There was significant relation of suicidal ideation with the presence of chronic pain, sexual/physical abuse history, level of hopelessness and severity of depression in epilepsy patients. Multiple logistic regression analysis showed that unemployment and the level of hopelessness are independently related to suicidal ideation in these patients. In the prediction of suicidal ideation in patients with epilepsy, there is no single variable that should be considered as specific and separate.

Acknowledgements: None.

Conflict of interest: None to declare.

References

1. Barraclough BM: *The suicide rate of epilepsy. Acta Psychiatr Scand* 1987; 76:339-45.
2. Beck AT, Steer RA & Ranieri WF: *Scale for Suicide Ideation: psychometric properties of a self-report version.*

- J Clin Psychol* 1988; 44:499-505.
3. Beck AT, Weissman A, Lester D, Trexler L: *The measurement of pessimism: The Hopelessness Scale. J Consult Clin Psychol* 1974; 42:861-5.
4. 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.
5. Christensen J, Vestergaard M, Mortensen PB, Sidenius P, Agerbo E: *Epilepsy and risk of suicide: a population-based case-control study. Lancet Neurol* 2007; 6:693-8.
6. Fisher BJ, Haythornthwaite JA, Heinberg LJ, Clark M, Reed J: *Suicidal intent in patients with chronic pain. Pain* 2001; 89:199-206.
7. 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.
8. Gliatto MF & Rai AK: *Evaluation and treatment of patients with suicidal ideation. Am Fam Physician* 1999; 59:1500-14.
9. Hamilton M: *A rating scale for depression. J Neurol Neurosurg Psychiatry* 1960; 23:56-62.
10. Hecimovic H, Santos JM, Carter J, Vahle VJ, Gilliam FG: *Prevalence of suicidal ideation and depression in adult epilepsy clinic. Neurology* 2005; 64(suppl 1):267.
11. Ilgen MA, Zivin K, McCammon RJ, Valenstein M: *Pain and suicidal thoughts, plans and attempts in the United States. Gen Hosp Psychiatry* 2008; 30:521-7.
12. Jones JE, Hermann BP, Barry JJ, Gilliam FG, Kanner AM, Meador KJ: *Rates and risk factors for suicide, suicidal ideation, and suicide attempts in chronic epilepsy. Epilepsy Behav* 2003; 4(suppl 3):S31-8.
13. Lim HW, Song HS, Hwang YH, Lee HW, Suh CK, Park SP et al.: *Predictors of suicidal ideation in people with epilepsy living in Korea. J Clin Neurol* 2010; 6:81-8.
14. Loga S: *Samoubistvo (suicid). In Loga S (ed): Klinička psihijatrija, 407-16. Sarajevo; Tuzla: Medicinski fakulteti, 1999.*
15. Miller JM, Kustra RP, Vuong A, Hammer AE, Messenheimer JA: *Depressive symptoms in epilepsy: prevalence, impact, aetiology, biological correlates and effect of treatment with antiepileptic drugs. Drugs* 2008; 68:1493-509.
16. Moscicki EK: *Identification of suicide risk factors using epidemiologic studies. Psychiatr Clin North Am* 1997; 20:499-517.
17. Nilsson L, Ahlbom A, Farahmand BY, Asberg M, Tomson T: *Risk factors for suicide in epilepsy: a case-control study. Epilepsia* 2002; 43:644-51.
18. Robertson MM: *Suicide, parasuicide, and epilepsy. In Engel J & Pedley TA (eds): Epilepsy: a comprehensive textbook, 2141-51. Philadelphia: Lippincott-Raven, 1997.*
19. Stefanello S, Marin-Léon L, Fernandes PT, Min LL, Botega NJ: *Suicidal thoughts in epilepsy: a community-based study in Brazil. Epilepsy Behav* 2010; 17:483-8.
20. Tellez-Zenteno JF, Patten SB, Jetté N, Williams J, Wiebe S: *Psychiatric comorbidity in epilepsy: a population-based analysis. Epilepsia* 2007; 48:2336-44.

Correspondence:

Nataša Loga Andrijić, MD, MSc
Department of Neurology, Clinical Centre University of Sarajevo
Bolnička 25, 71000 Sarajevo, Bosnia and Herzegovina
E-mail: natasaloga@yahoo.com