

## Attempt to Suicide in Young Ages with Epilepsy

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Received: May 10, 2011; Final Revision: Dec 14, 2011; Accepted: Feb 01, 2012

### Abstract

**Objective:** The suicidal rate among epileptic patients is up to 5 times more than general population and depression is the most common mood disturbance among them while usually under noticed. This study was performed to determine possible symptoms of psychiatric disorders for suicidal behavior in pediatric patients with epilepsy that had attempted suicide.

**Methods:** Among medical records of 1169 patients under 17 years of age being admitted to the exclusive university hospital for poisoning in Tehran since April 2006 to Feb 2008 due to attempt to suicide, 31 cases (13 male and 18 female) with mean age 15.8±1.3 years had concomitant epilepsy. Mental status and epilepsy data sheet of these patients were analyzed.

**Findings:** The psychological evaluation of these 31 cases revealed long lasting symptoms of psychological disorder in 21 (91.4%) cases before their attempt to suicide while only 5(16%) cases had been noticed for psychiatric care and merely 3 of them had been under treatment.

**Conclusion:** Despite strong correlation between affective disorders and epilepsy it is unfortunately under-diagnosed or undertreated. Since overdose of antiepileptic drugs used for treatment of epilepsy may be lethal, dismissing suicidal behavior can be life threatening.

*Iranian Journal of Pediatrics, Volume 22 (Number 3), September 2012, Pages: 404-407*

**Key Words:** Suicide, Attempted; Epilepsy; Adolescent; Psychosocial Factors

### Introduction

Although range of studies have found an association between epilepsy and increased risk of suicide and attempted suicide, however these studies are mostly analyses of adult populations and illnesses [1].

The suicidal rate among epileptic patients is up to 5 times higher than in general population not only in adults but in adolescents and young ages. Incidence of affective disorder varies between 11

to 65% and depression is the most common suicidal behavior in this concern [2-4].

Comorbidity between epilepsy and psychiatric disorders is an important issue in suicide prevention. Depression, psychosocial problems, stigma, social deprivations, effect of antiepileptic drugs on mood and also quality of life may be related to this high incidence rate [2,5-7].

This study was carried out to determine possible preexisting alarming signs and symptoms of psychiatric disorders for suicidal behavior in

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patients with epilepsy at pediatric age in order to propose preventive measures.

### **Subjects and Methods**

This study was a hospital based case series in a period of 2 years since April 2006 to February 2008, all hospital admissions of attempted suicide in pediatric age group at the exclusive university hospital for poisoning in Tehran were studied.

The entry criteria were: Age under 17 years, attempt to suicide (unsuccessful suicidal action) and diagnosis of epilepsy (history of at least 2 unprovoked seizures). We found 1169 patients in pediatric age group who had attempted suicide, among them 31 cases had epilepsy.

All cases were analyzed mentally by two psychiatrists who were expert in suicidal subject, and psychological diagnosis was documented by them after physical stabilization. Diagnosis of epilepsy was also made by checking history and documents by neurologist engaged with epilepsy cases.

Three major diagnoses were:

- Adjustment disorder: An emotional and behavioral reaction that develops within 3 months of a life stress, and which is stronger or greater than what would be expected for the type of event that occurred.
- Depression and major depression: Mood disorder in which feelings of sadness, loss, anger, or frustration interfere with everyday life for weeks or longer.
- Bipolar depression: a condition in which people go back and forth between periods of a very good or irritable mood and depression

Cases of accidental intoxication and seizures other than epilepsy and also medical records insufficient to allow data analysis in detail were excluded.

All data needed in concern with research including gender, age, residence, education, date of event, causes, suicidal methods, history of previous suicide, symptoms of mood disturbance, suicidal thoughts, type and duration of epilepsy, state of seizure control, medications, neuro-imaging and EEG findings among epileptic group

were all recorded in a checklist. To compare differences between groups we used chi-square and Student's t-tests where appropriate and *P*-value of less than 0.05 was considered significant.

All data were analyzed using SPSS software version 11.

### **Findings**

Of a total (n=1169) suicide cases, 1138 patients were nonepileptic and 31 (2.7%) patients had concomitant epilepsy. Epileptic patients were 12 to 17 years old with mean age of 15.8±1.3 years. Among the epileptics, 18 were females and 13 males. In nonepileptic group 407 (35.8%) were males and 731 (64.2%) females with mean age of 15.8±1.28 years. Comparison of the epileptic and nonepileptic groups from the view of gender, using chi-square test did not show meaningful difference (*P*-value =0.48) and for comparing the ages we used Student's t-test that also showed no meaningful statistical difference between the two groups (*P*-value=0.885).

Six (19.4%) patients had idiopathic localized related epilepsy and 25 (1 symptomatic and 24 idiopathic) had primary or secondarily generalized epilepsy); 14 out of 31 were on carbamazepine, 7 on sodium valproate monotherapy, 7 on polytherapy with two or more anticonvulsant drugs and 3 patients received no medication. 28 (91.3%) cases were using antiepileptic drugs (AEDs) for more than 1 year. Psychological symptoms were present in 28 (91.3%) of the patients during the past year or longer, 3 cases were confronted with acute stressor. Psychological diagnosis and symptoms of the patients are demonstrated in Table 1 and 2 respectively.

### **Discussion**

Our results demonstrated that depression and other psychiatric disorders are usually under-



**Table 1:** Patient diagnosis based on DSM IV (n=1169)

Diagnosis	Epileptics (n=31)	Non-epileptics (n=1138)
Adjustment disorder	(6) 19.4 %	(524) 46%
Adjustment+Depression	(17) 54.8%	(46) 4%
Major depression	(3) 9.7%	(36) 3.2%
Bipolar disorder	(2) 6.5%	(112) 9.8%

diagnosed in young epileptic patients. Signs are either dismissed or considered as normal reactions while it can be life threatening and predispose one to suicidal behavior [8-16].

Our findings in this study revealed long standing symptoms of psychiatric disease in at least 90% (28) of the cases before their attempt to suicide while only 5 patients had been under psychiatric care. Although studies done by Hawton et al 1980, Matthews and Barabas 1981, Barraclough 1992, Fukuchi2002 all demonstrate the risk of suicide and suicidal attempts in epileptic patients in other parts of the world, however as mentioned earlier, these studies are mostly done in adults [17-20], our study presents one of very few existing studies of epilepsy and suicide in young ages from Iran.

In the study done in epileptic children by Otto and colleagues published in *Epileptia* in 2003 in spite that 66% of their cases had DSM-IV psychiatric diagnosis, only 33% were receiving any treatment [10]. Our study indicates that the situation is even more complicated. While 90% of our patients had clear cut psychiatric symptoms that needed close observation, only 10 % were receiving some treatment which was not finally of

benefit for them. Depressed mood, loss of interest, irritability, worthlessness, suicide ideation and sleep disorder had been the most common symptoms among them as shown in Table 2. These symptoms had been present for more than 1 year in 23 (75%) of cases and up to 1 year in 5 (16.3) cases.

In accordance with previous studies [7] depression was the most common psychiatric problem as existed in 55% of our cases.

Neurologists usually focus on seizure management of epileptic patients while as many as half of these patients may have psychiatric disturbances with the most common episodic depressive moods often associated with suicidal bent [11]. The psychiatric symptoms are usually dismissed or undertreated in epileptic patients as in our cases while they are exposed to life threatening drugs that make suicide attempt for them easier.

Children and adolescents with epilepsy experience acute and chronic stressors such as family conflicts, difficulty in school performance, stigma, psychosocial limitation or deprivations due to wrong beliefs in concern with epilepsy that may not necessarily have underlying mental

**Table 2:** Frequency of psychiatric symptoms in index cases (Epileptic patients)

Symptom	n (%)
Depressed mood	29 (96.7%)
Loss of interest	20 (64.5)
Irritability	15 (48.3)
Weight change (gain/loss)	6 (19.3)
Psychomotor (agitation/retardation)	1 (3.2)
Fatigue	6 (19.3)
Worthlessness	12 (38.7)
Concentration impairment	9 (29)
Suicidal ideation	8 (25.8)
Suicidal attempt	2 (3.2)
Sleep disorder (insomnia/hypersomnia)	7 (22.2)

disorder but push one to poor lifestyle and dingy environment [7]. Therefore it is recommended that all physicians involved in management of epilepsy do a psychiatric evaluation for possible risk factors of suicide in their patients at the time of initial evaluation, not missing alarming signs and symptoms of mood disturbances and referring the patients to experienced psychiatrist on time. On the other hand, it seems to be necessary to make neurology and psychiatry trainees more familiar with various and differing symptoms of psychiatric problems in young epileptic patients.

At the end we admit limitation of this study in concern with outpatient cases due to lack of national or hospital based registry in this concern at the time of study. On the other hand, different factors other than epilepsy can predispose young patients to attempt suicide.

## Conclusion

Despite strong correlation between affective disorders and epilepsy it is unfortunately under-diagnosed or undertreated. Since overdose of antiepileptic drugs used for treatment of epilepsy may be lethal, dismissing suicidal behavior can be life threatening.

## Acknowledgment

Thanks are due to Dr. Koroush Gharegozlou in Loghman educational hospital, for administrative cooperation and Drs. Sara Mossahebi for statistical review in this study.

**Conflict of Interest:** None

## References

- Christiansen E, Stenager E. Risk for attempted suicide in children and youths after contact with somatic hospitals: a Danish register based nested case-control

- study. *J Epidemiol Community Health* 2012;66(3): 247-53.
- Kalinin VV. Suicidality and antiepileptic drugs: is there a link? *Drug Saf* 2007;30(2):123-42.
- Bell GS, Gaitatzis A, Bell CL, et al. Suicide in people with epilepsy: how great is the risk? *Epilepsia* 2009;50(8):1933-42.
- Kalinin V, Polyanskiy DA. Gender differences in risk factors of suicidal behavior in epilepsy. *Epilepsy Behav* 2005;6(3):424-9.
- Christensen J, Vestergaard M, Mortensen PB, et al. Epilepsy and risk of suicide: a population-based case-control study. *Lancet Neurol* 2007;6(8):693-8.
- Larzelere RE, Anderson JJ, Jorgenson D. The child suicidal risk assessment. *Death Stud* 2004; 130(2): 288-303.
- Nilsson L, Ahlbom A, Farahmand B, et al. Risk factors for suicide in epilepsy. *Epileptia* 2002; 43(6):644-8.
- Plioplys S. Depression in children and adolescents with epilepsy. *Epilepsy Behav* 2003;4(supp 3):S39-45.
- Suris JC, Parera N, Puing C. Chronic illness and emotional distress in adolescence. *J Adolescent Health* 1996;19(2):153-6.
- Ott D, Siddarth P, Gurbani S, et al. Behavioral disorders in pediatric epilepsy: unmet psychiatric need. *Epileptia* 2003;44(6):591-7.
- Baker GA. Depression and suicide in adolescents with epilepsy. *Neurology* 2006;66(6 Suppl 3):S5-12.
- Mehdizadeh M, Zamani Gh, Kabiri M. Attempt to suicide in children in Loghman hospital. *Iran J Pediatr* 2006;16(3):337-42. (In Persian)
- Pataki C. Mood disorders and suicide in children and adolescents. In: Sadock B, Sadock V. *Comprehensive Textbook Of Psychiatry*, 7<sup>th</sup> ed. Philadelphia: Lippincott Williams and Wilkins, 2000; Pp: 2740-52.
- Thanh HT, Jiang GX, Van TN, et al. Attempted suicide in Hanoi, Vietnam. *Soc Psychiatry Psychiatr Epidemiol* 2005;40(1):64-71.
- Harden CL. The comorbidity of depression and epilepsy: epidemiology, etiology and treatment. *Neurology* 2002;59(6 Suppl 4):48-55.
- Mainio A, Alamäki K, Karvonen K, et al. Depression and suicide in epileptic victims. *Epilepsy Behav* 2007;11(3):389-93.
- Hawton K, Fagg J, Marsack P. Association between epilepsy and attempted suicide. *J Neurol Neurosurg Psychiatr* 1980;43(2):168-170
- Matthews WS, Barabas G. Suicide and epilepsy: a review of the literature. *Psychosomatics* 1981;22(6): 515-24.
- Barracough B. Suicide and epilepsy. *Br J Psychiat* 1992;160:154-64.
- Fukuchi K, Kanemoto K, Kalo M, et al. Death in epilepsy with special attention to suicide cases. *Epilepsy Res* 2002;51(3):233-6.