

Activation / Inhibition System and Family Function in the Patients with Psychogenic Non-Epileptic Seizure, Temporal Lobe Epilepsy and Control Groups

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ABSTRACT

The aim of this research is to study the activation / inhibition system and family function in patients with psychogenic non-epileptic seizure, temporal lobe epilepsy and control groups. Among patients who came with epilepsy complaining to Imam Reza (peace be upon him) clinic in Shiraz city, a total of 33 patients with psychogenic non-epileptic seizure (after the doctor confirmed diagnosis of psychogenic non-epileptic seizure) and 33 patients with temporal lobe epilepsy were selected. 33 people were considered as control group as well. White and Carver Behavioral activation/inhibition scale and Epstein, Baldwin and Bishop Scale to assess family function were used in order to collect data. After gathering data, multivariable variance test has been used in order to analyze it. The test has indicated a significant difference in the structures of activation/inhibition system and family function of the patients with psychogenic non-epileptic seizure, temporal lobe epilepsy and control group. Patients with psychogenic non-epileptic seizure and temporal lobe epilepsy have obtained higher grades than control group about behavioral inhibition scale. Findings of present study show that this system has more activity in patients with psychogenic non-epileptic seizure and temporal lobe epilepsy, but there was no difference seen in behavioral activation system in patients with psychogenic non-epileptic seizure and temporal lobe epilepsy. In addition, there is significant difference between patients with psychogenic non-epileptic seizure and temporal lobe epilepsy and control group in family function structure; as though, in subscale of problem solving, communication, roles, emotional companionship, emotional involvement, behavior control, and general function, patients with psychogenic non-epileptic seizure have obtained higher grades than 2 other groups of temporal lobe epilepsy and control group. It means patients with psychogenic non-epileptic seizure have more problems in problem solving, communication, roles, emotional companionship, emotional involvement, behavior control, and general function than 2 other groups.

Key words: Psychogenic non-epileptic seizure,
Temporal lobe epilepsy, Activation/inhibition system, Family function

INTRODUCTION

Psychogenic non-epileptic seizure (PNES) is paroxysmal changes in behavior which happens suddenly in motions, feelings and experiences. These attacks are like epilepsy ones but these attacks occur in the context of normal EEG waves.

The incidence and prevalence of disease is very high¹. Unfortunately, there are no reliable statistics on the prevalence of psychogenic non-epileptic seizure but researches in Europe and United States shows that 20% of bedridden patients with epilepsy and paroxysm are afflicted by psychogenic non-epileptic seizure. Scott demonstrated in a survey

that 5% of outpatients were diagnosed with this disorder². The researches indicate that there are different psychogenic non epileptic seizure attacks in different ages and genders. Most of them experience psychogenic non epileptic seizure before the age of 40 and the prevalent of these attacks is more among adolescents and infants³. An prevalence of 2-33 in 100.000 estimated for them⁴. The results show that these attacks have been observed among women than men. Although recent research has shown that these differences are lower than previously thought, but ratio of women to men has been reported 4 to 1. But the proportion of women to men is reported 4 to 1. Moreover the prevalence of these attacks is more in those with a history of 10-20% afflicted to neurology and epilepsy attacks². The persistent epilepsy is in fact the psychogenic non epileptic seizure which 70-80% of them are the women⁵. Many of PNES patients have other psychiatric disorders in I axis that the most common diagnoses are somatoforms, dissociative disorders, mood disorder, and posttraumatic stress disorder. Some of these patients have brain organic disorders while psychogenic non-epileptic seizure happens. Almost 10-50% of the patients with psychogenic non-epileptic seizure involve in real epilepsy attacks as well and learning disorders seen in these patients. Some of related studies reported the relationship between head injuries and psychogenic non-epileptic seizure. Sometimes, psychogenic non-epileptic seizure is seen after neurological or psychogenic epileptic surgery. Some of PNES patients experience these seizures for family and social traumatic and contradicted texture. These patients often have a history of physical or sexual abuse in their childhood⁶. Depression is the most common psychiatry disorder in these patients. Moreover the suicide commitment is so common among them and the high extent of depression and suicide can be the result of psychogenic non-epileptic seizure. The second co morbidity disorder with psychogenic non-epileptic seizure is anxiety disorder. These patients show further C cluster disorders in the axis II. Generally speaking, these patients suffered from somatoform disorders (89%), dissociative disorders (91%), personality disorders (64%), posttraumatic stress disorder (49%) and anxiety disorder (41%). Approximately 10-15% of the patients with psychogenic non epileptic seizure

involve in epilepsy attacks as well. They encounter with some problems and instabilities in their relations^{7, 8}. The diagnosis of psychogenic non epileptic seizure disorder is so important and when this disorder doesn't diagnose correctly leads to inappropriate antiepileptic and antidepressant and makes enormous expenses for them. It may also they categorize as persistent epilepsy patient which their prognosis is so bad in long term. The researches indicates several psychiatric symptoms in these patients in a way that they report more psychiatric and psychology symptoms in psychological evaluation in comparison with non-patients and those with epilepsy and experience more family problems^{9,10}. The extent of their improvement and recrudescence depends on emotional expression and relation quality of patient family and the level of emotional expression. There is more criticism, faultfinding and hostility in the family of those with psychogenic non epileptic seizure. It means higher extent of emotional expression with more frequency of psychogenic non epileptic seizure¹¹. Researches indicate that exciting involvement and anxiety reported in the families of those with psychogenic non epileptic seizure. The surveys show psychological conflicts in the families of these patients as well and these families suffer from more hygienic problems, stress and criticism¹²⁻¹³. Therefore multilateral and complete recognition of the character and behavior of their families leads to appropriate therapeutic methods. Therefore this study deals with a comparison between activation/ inhibition system and the family function of those with epilepsy attacks and control group.

MATERIALS AND METHODS

Of all the people who complain about epilepsy visited the clinic of Imam Reza (Peace be upon him) after doctors diagnosed 33 patients with temporal lobe epilepsy and 33 patients with psychogenic non epileptic seizures were chosen. The choice was done after the physician's final diagnosis for psychogenic non epileptic. As well as 33 non-patients were chosen as control group and questionnaires related to the study after obtaining informed consent were given to them. In this study, the inclusion of several criteria, such as informed consent to participate in research, not suffering from

weakening psychiatric disease, not suffering from known neurologic disease, no record of kick of head, no record of brain attack and lack of drug abuse.

Behavioral

Behavioral activation/inhibition scale is self-reporting tool made by white and Carver based on Garry theory. The main form of this scale has 20 questions that made from 2 total factor of behavioral inhibition system (BIS, 7 questions) and behavioral activation system (13, questions). The activation factor in this form has 3 subscales of reward (BASR, 5 questions), drive (BASD, 4 questions), and fun-seeking (BASF, 4 questions). Each expression in this tool has 4-degree responding scale of (not fully agree mark 1) to (fully agree mark 4). The Cronbach alpha coefficient for preventing scale is 74% and for other activation scales of reward, drive, and fun-seeking are 73%, 76%, and 66%, respectively¹⁴.

Family function scale

Family function scale is a sixty-question tool that has been formulated to evaluate family function by Epstein, *Baldwin* & Bishop based on Mc Master Pattern in 1983. This tool has been made to measure Mc Master aspects of family structure and function means problem solving, communication, roles, emotional response, emotional confound, and behavior control, and evaluates general function. Subjects choose one of options for each item as the following: fully agree, agree, disagree, and fully disagree. According to the main form, each family member, older than 12, can fill FAD. For FAD marking, all answers are codified from 1 to 4. Higher mark indicates unhealthier function. Alpha coefficient of total scale and scales of problem solving, communication, roles, emotional companionship, emotional confound, behavior

control, and total function are reported as 0.92, 0.61, 0.38, 0.72, 0.64, 0.65, 0.61, and 0.81, respectively¹⁵.

RESULT

The age average of groups with psychogenic non epileptic seizure (PNES) is 39/90 and average of temporal lobe epilepsy (TLE) and control group is 36/67 and 35/65 respectively. The groups with psychogenic non epileptic seizure (PNES), temporal lobe epilepsy and control conform comparatively in the way of age average. In gender variant the proportion of women to men is more than epilepsy and control group. Moreover control group and epilepsy group have higher education toward psychogenic non epileptic seizure group. As 60% of groups with epilepsy attacks and 40% of control group have university degree which this percentage is 13/3% in the groups with psychogenic non epileptic seizure and 66/6% of them in the educational category of Primary and Guidance school. The age average of the first period in afflicted group of psychogenic non epileptic seizure in lower contrary to epilepsy group.

Table 1: Description of study

	HC	PNES	TLE
N	33	33	33
Age	35.65	39.90	36.67
Sex (F:M)	12:18	22:8	9:21
Education			
Primary & Guidance school (%)	12(36.6)	21(66.6)	5(13.3)
High school (%)	8(23.3)	7(20)	9(26.6)
College education	13(40)	5(13.3)	19(60)
Age at onset of seizure	-	19.48	30.47

Table2: Behavioral activation and behavioral inhibition system

	HC		PNES		TLE	
	M	SD	M	SD	M	SD
Reward Drive	16.23	2.14	15.16	2.69	15.86	2.43
Fun-seeking	10.73	2.51	10.93	2.42	10.33	1.84
	10.60	1.83	10.60	1.95	10.16	2.19
Behavioral inhibition	11.56	1.79	24.33	1.53	19.96	2.70

As it's observed behavioral activation composed of three subscales of reward, driver and fun-seeking. The patients with psychogenic non epileptic seizure, temporal lobe epilepsy and control group obtained equal scores in reward, driver, and fun-seeking that are subscale of behavioral activation. In behavioral inhibition patients of PNES and TLE have obtained higher grades than control group

The patients with psychogenic non epileptic seizure obtained higher scores in the

subscale of problem solving and relations and roles contrary to two groups of temporal lobe epilepsy and control. The patients with psychogenic non epileptic seizure obtained higher scores in the subscale of emotional accompany emotional blending, behavior control and general function as well.

Above table states that there is a significant difference in activation/ inhibition system and family function between the groups with

Table3: Family function

	HC		PNES		TLE	
	Mean	SD	Mean	SD	Mean	SD
Problem solving	12.16	2.18	13.73	2.88	12.60	1.97
Relation	15.20	1.71	16.56	2.43	14.66	1.82
Roles	20	5.93	23.43	3.38	20.73	2.27
Emotional companionship	14.86	6.95	20.26	3.67	15.63	1.86
Emotional blending	18.20	2.86	23.53	4.48	19.76	2.86
Behavior control	18.86	2.37	20.90	2.76	19.76	1.85
General function	26.86	3.57	32.96	5.75	27.96	3.50

Table 4: Statistic index of Wilks' Lambda, Behavioral activation/ prevention system and family function in groups

	Wilks' Lambda	F	p
Group	.006	1.52	.000

psychogenic non epileptic seizure, temporal lobe epilepsy and control groups

As it's observed in above table the behavioral activation system is constituted from 3 subscale of reward, drive, and fun-seeking The patients with temporal lobe epilepsy and

Table 5: The results of multivariant analysis of behavioral activation/ inhibition system and family function in groups

Statistics variant	SS	df	MS	F	p
Behavioral inhibition	2524.2	2	1262.11	289.44	.000
Reward	17.06	2	8.53	1.44	.243
Drive	4.17	2	2.08	.516	.599
Fun-seeking	4.63	2	2.31	.442	.644
Problem solving	58.86	2	29.43	5.19	.007
Relation	57.62	2	28.81	7.10	.001
Roles	132.82	2	66.41	3.84	.025
Emotional accompany	512.15	2	256.07	11.74	.000
Emotional blending	450.86	2	225.43	21.65	.000
Behavior control	62.28	2	31.14	7.66	.001
General function	634.2	2	317.1	16.33	.000

Table 6: Post hoc test for comparative analysis of the groups

			Means Difference	P
Behavioral inhibition	control group	PNES group	12.76	.000
		TLE group	8.4	.000
Problem solving	control group	PNES group	1.56	.03
		TLE group	.266	.902
Relation	control group	PNES group	1.36	.027
		TLE group	.53	.563
Roles	control group	PNES group	1.62	.04
		TLE group	.276	.809
Emotional accompany	control group	PNES group	5.4	.000
		TLE group	.76	.801
Emotional blending	control group	PNES group	5.33	.000
		TLE group	1.56	.15
Behavior control	control group	PNES group	2.33	.001
		TLE group	.90	.6
General function	control group	PNES group	6.1	.000
		TLE group	1.1	.6

psychogenic non epileptic seizure and control group obtained equal scores in subscale of reward, drive, and fun-seeking that are behavioral activation subscales and there is no significant difference between obtained average scores in these three groups. The patients with psychogenic non epileptic seizure and temporal lobe epilepsy attacks obtained higher scores contrary to control groups in behavioral inhibition which this difference is significant. They also obtained higher scores in the subscale of problem solving and relation, roles, emotional accompany, emotional blending, behavior control and general function contrary to two groups of epilepsy and control and there is significant difference between the groups afflicted to psychogenic non epileptic seizure and those with epilepsy and control group.

Table 6 shows that in the subscales of Behavioral inhibition, Problem solving, Relation, Roles, Emotional accompany, Emotional blending, Behavior control and General function, there is a significant difference between "control and PNE groups" and "TLE and PNES groups" ($P < 0.05$).

DISCUSSION AND CONCLUSION

The main aim of this study is investigation of behavioral activation/inhibition system and family function in the patients with psychogenic non epileptic seizure, epilepsy and control group. The findings of the study indicates that those with psychogenic non epileptic seizure and epilepsy attacks are different with non-patient in the way of behavioral activation/ inhibition system in the way that this system acts more actively in this people. The system of behavior inhibition instigates with punitive conditional, new and cognateness motives. These motives make private threat in all kind of live creatures. Moreover the motives in social life like newborn cry can activate this system. The findings of the study indicates more activity of this system in the patients with psychogenic non epileptic seizure and epilepsy attacks but there is no significant difference in the activation system of the patients with psychogenic non epileptic seizure and epilepsy with control group¹⁶. The findings of the study also shows that the family function of the patients with psychogenic non epileptic seizure differs from those

with epilepsy in a way that the patients with psychogenic non epileptic seizure obtained higher scores in the subset of problem solving, relation, roles, emotional accompany, emotional blending, behavior control and general function contrary to two groups of epilepsy and control which it means that those with psychogenic non epileptic seizure have more problems in problem solving, relation, roles, emotional accompany, emotional blending, behavior control and general function contrary to those with epilepsy and control group. With reference to problem solving refers to family ability for problem solving and its process, effective and expansive relation in families and emotional response refer to family members strategy for giving proper exciting response, either positive feelings (enjoy, love, attention, kindness, affection) or negative (sad, depression, anger, fear), emotional blending to interest quality, attention and family members' investment for each other and behavior control refers to standards and behavioral freedom, it can be mentioned that these patients show more defects in emotional function and relation between family members contrary to control and epilepsy group which these findings conforms with the results of study of LaFrance and the colleagues in

2011¹⁷. LaFrance and the colleagues investigated the effect of family function on life quality of the patients with psychogenic non epileptic seizure and epilepsy and findings indicates that the men with psychogenic non epileptic seizure have more problems in problem solving, relations, emotional accompany, emotional blending and general function contrary to epilepsy and control group and the women with psychogenic non epileptic seizures have more problems in relations and general function. The study of Nicola and the colleagues in 2003 on exciting expression in the families of patients with psychogenic non epileptic seizure and epilepsy attacks showed that there are more hygienic problems, stress and criticism in their families which confirms this study's findings¹⁸. Furthermore, the findings of this study conform to the study of Moore and the colleagues in 1994 which performed about characteristics of the family of the patients with psychogenic non epileptic seizure and epilepsy attacks¹³. Moore and the colleagues demonstrated that there is higher extent of criticism, stress, expressing negative exciting, blending tasks, lack of emotional accompany and lack of cooperation in the families of the patients.

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