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Research Article

Frequency of Seizure Types in Patients with Multiple Sclerosis Referred to Ardabil City Hospitals: north-west of Iran-

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ABSTRACT

Background and objective: One of the diseases that increase the risk of seizures in the person is multiple sclerosis. Several studies have reported multiple sclerosis as a risk factor for seizure. This study was conducted to determine the frequency of seizure types in patients with Multiple Sclerosis (MS) referred to Alavi hospital in Ardebil city north-west of Iran.

Methods: This study was descriptive-cross-sectional that has been done on 250 MS patients who registered in the Ardabil MSreg database in Alavi hospital in Ardabil city during 20016-20017. Data were collected by a checklist which included demographic and clinical data. Collected data were analyzed by statistical methods in SPSS version 21.

Results: Of all patients, 17 patients (6.8%) had seizure that of them 5 patients (29.4%) was male and the rest were female. The mean age of patients with seizure was 36.1 ± 11.1 years. The highest prevalence in both sexes was generalized seizure. 41.2% of patients before MS suffered to seizures and 57.1% of patients had the severity of signs after MS. Visual and sensory impairments were the important signs among patients and 10.4% of patients had familial MS.

Conclusion: Results showed that the frequency of seizure in patients with multiple sclerosis is higher than that of general population. Doing more studies with big sample size in future was recommended.

Keywords: Seizure; Multiple sclerosis; Ardabil

INTRODUCTION

Multiple sclerosis (MS) is a central nervous system autoimmune disease that its highest prevalence rate is in 20-50 years and in 10% of cases it can be seen in people under 18 years old [1]. The prevalence rate in women is 2-3 times that of men [2]. The number of people with MS has an increasing trend so that the estimated number of patients in worldwide increased from 2.1 million in 2008 to 2.3 million in 2013 [3]. The highest incidence rate is reported to be 250 per 100,000 population in the Orkney islands in northern Scotland and its prevalence in Iran is 15-30 people per 100,000 population. The main cause of the disease still unknown but risk factors such as genetic background and autoimmune diseases deal to increase its incidence [4]. MS disease deal to multiple disorders such as sensory, recognition, optic neuritis, fatigue, dizziness, facial paralysis, dementia, myelopathy and seizure disorders in patients [5]. Seizure refers to abnormal discharging of the brain cortex which due to unnatural activity or simultaneously of brain neurons that divided to three general categories of focal, generalized and unclassified seizures. Generalized seizures are accompanied with lack of consciousness and focal seizures are with care [6-7]. Seizure is one of the most common neurological conditions that its prevalence is higher among younger children and also older people. Its yearly incidence in high income countries ranges from 40 to 70 cases per 100,000 and in low incomes countries it is estimated to be about twice that. Seizures are responsible for 1% of all hospital admissions and 3% of emergency cares [6]. Almost 5%-10% of normal people suffered to seizures during their life that its rate in MS patients was about twice [7]. Several factors such as neurobiological damages in MS, chronic pain resulting from damage to the nervous system and excitation of the brains Cortex and Sub cortex, trauma, alcohol and drugs side effects such as interferon beta are reasons for high prevalence of seizure in MS patients [8-10]. Today there are several reports of seizure incidence in MS patients worldwide. The aim of this study was to investigate the frequency of seizure types in patients with multiple sclerosis referred to the neurology department of Alavi hospital in Ardabil.

METHODS AND MATERIALS

This was a descriptive cross-sectional study that has been done on 250 MS patients registered in MS system of Alavi hospital in Ardabil city at north-west of country Iran with a history of seizure between 2016-7. The data were collected through a checklist containing demographic and clinical data such as age, sex, family history of the

disease, symptoms, the onset age of the disease, types of seizure and incidence of seizure before and after the MS which completed by study the patients hospital records. Collected data were analyzed by statistical methods in SPSS version 21.

RESULTS

Of all 250 patients, 55.2% were women and the rest were men. Of all patients, 17 (6.8%) had seizure that of them 5 (29.4%) were men with an average age 47.4 ± 4.4 years and the rest were women with an average age of 31.6 ± 9.8 years. The incidence of seizure was 4.5% for all men and 8.7% for women and this rate in women was 2 times more than men. The average age of patients with seizure was 36.1 ± 11.1 years (range: 18- 57 years) and the highest frequency was in the age group of 30-39 years (Table 1). The results showed that 89.6% of patients had no family history of MS that of them, 6% had seizures and 0.8% of patients had both history of seizure and MS. The most common symptoms among patients were visual and sensory disorders with 37.6% and 31.2%, respectively that of them, 2.8% and 2.4% had seizures also, respectively. Patients with urinary and speech problems did not have a history of seizure (Table 2). Of all patients,

Table 1: Characteristics of patients with seizure.

Characteristics of patients		n	%
Sex	Male	5	29.4
	Female	12	70.6
Age	19 - 10	1	5.9
	29 - 20	4	23.5
	39 - 30	6	35.3
	49 - 40	4	23.5
	59 - 50	2	11.8

Table 2: Relation between family history and disease symptoms with seizure incidence.

Characteristics of patients	n		Seizure incidence		
	n	%	n	%	
Family history of MS	+	26	10.4	2	0.8
	-	224	89.6	15	6
Symptoms	Visual disorder	94	37.6	7	2.8
	Imbalance	10	4	2	0.8
	Urinary tract	2	0.8	0	0
	Motor impairment	65	26	2	0.8
	Sensory impairment	78	31.2	6	2.4
	speech problem	1	0.4	0	0

41.2% had a history of seizure before MS that of them 4 cases (57.1%) stated that their seizure was exacerbated after getting MS (Table 3). Generalized seizures with 60% and 83.4% were the most common type of seizure in both males and females and there was no status type in women and there wasn't difference between type of seizure and gender (Figure 1).

DISCUSSION

Multiple sclerosis is a chronic neurological disease that in addition to produce common physical problems in patients deals to other problems including seizures in patients. In the present study, the prevalence of seizure among patients was 6.8%. Studies have shown that the prevalence of seizure among normal people is 1.8% [5]. In the study of Zare et al, the prevalence of seizure among patients was 3.69% and in the study by Charles M et al was 2.3% which was lower than the present study [11-12]. In the present study, the prevalence of seizure was 4.8% among women which was higher than men. In Saberi et al study, the prevalence of seizure in men and women was 7% and 6%, respectively and there wasn't significant difference between two sexes [13]. In Kruja et al study, the seizure was more common in men with MS which did not match the results of this study [14]. The average age of patients with seizure was 36.1 ± 11.1 years which was higher than the average age in Zare et al study with 32.6 ± 6.23 years. In this study, 58.8% of patients had a history of seizure after MS and 41.2% had a history of seizure before MS. In the Bernitsas et al study which was done on 855 patients, 14.3% of the patients had a history of previous seizure and in 19% the seizure was the first manifestation of MS which was lower than the current study [15]. In the study of Ganguly et al, 10% of patients after MS had seizure which was lower than the present study [16]. In this study, the highest prevalence of generalized seizure was seen in both sexes which was similar to Zare, Hernandez et al studies [12,17]. In Thomas et al study, 11.6% of patients had a family history of MS and 10.4% of patients had a family history of MS that of them 0.8% had also history of seizure which was lower than our study results [18].

CONCLUSION

Regarding the high prevalence of seizure among patients with multiple sclerosis in compare to general population, Informing patients in this regard deal to increases in the acceptance of treatment

Table 3: Frequency of seizure history and severity in patients with seizure.

Characteristics of patients		n	%
History of seizure	+	7	2/41
	-	10	8/58
Severity of symptoms after disease	+	4	1/57
	-	3	9/42

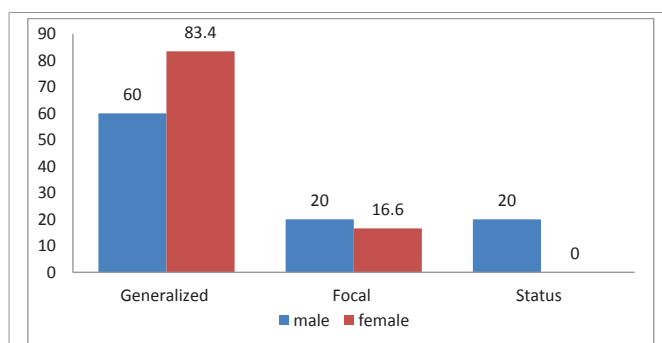


Figure 1: The frequency type of seizures by sex in patients with seizure.

by patients and reduces seizure complications and finally reduces costs of patient and health care services. Considering the importance of this topic, it is recommended that studies be conducted with a larger sample size in MS patients in future.

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