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Prevalence of Metabolic Syndrome among Bipolar Patients.

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ABSTRACT

In the recent researches, it is reported increased level of metabolic syndrome among psychiatric patients including those with bipolar disorders. Due to the lack of well-done researches in Iran, the goal of this article is to investigate the prevalence of metabolic syndrome among patients with bipolar disorder I (BMDI) in a psychiatric hospital. It is an observational research which was done during 2013-2014. The sample group was bipolar patients admitted in Ebn-e- Sina Hospital in Bandar-e-Abbas City. The diagnosis of the disorder was done by psychiatrist using DSM-IV criteria and for metabolic syndrome by using ATP III-A, IDF& IRAN criteria, separately. The results had been analyzed using T-test and chi-score tests. The sample includes 100 patients with bipolar disorder (n = 100). The mean age of participants was 34.5 ± 12.5 years. 64% were males and 36% were females.. The prevalence of metabolic syndrome was 20% ,15% ,16% based on ATP III-A, IDF& IRAN criteria, respectively. In this study, according to Criteria ATP III-A, there is significant relationship between age, sex, smoking, duration of drug use and metabolic syndrome. There is not significant relationship between the level of education, type of medication, and metabolic syndrome. The prevalence of metabolic syndrome in bipolar disorder I in our study was lower than other studies. this difference maybe is due to genetic factors or people life styles in this region.

Keywords: Prevalence, Metabolic Syndrome, Bipolar mood Disorder

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INTRODUCTION

Having a psychiatric disorder is a serious obstacle against effective medical care. Most psychiatric disorders including schizophrenia, Bipolar mood Disorder (BMD) and depression have been accompanied with mortality and morbidities which aren't related to the main illness, so that it is considered as a major health issue. The estimated mortality of these people are 2-3 times more than the others and their longevity reduced 15-30 years [1, 2].

The patients with bipolar disorders have also other problems like weight gain, lack of exercise, unhealthy living style, smoking, diabetes, hypertension and dyslipidemia [3-5]. In recent years, it is clarified that antipsychotics have negative somatic effects. atypical antipsychotics drugs double cardiovascular disease after three years [1, 6]. The performed researches in the different parts of world about the prevalence of metabolic syndrome have reported higher rate in bipolar patients than normal population [7, 8]. However, in some researches, it is indicated that racial variety have affected the prevalence of metabolic syndrome [9]. It is a popular metabolic disorder because of increasing in the rate of obesity [10]. It is known as obesity, dyslipidemia, hyperglycemia and high hypertension are becomes a basic health challenges throughout the world [11]

As there is no performed research in Hormozgan Province so far, we are about to investigate the prevalence of metabolic syndrome among bipolar patients in the only psychiatric hospital of Hormozgan Province.

MATERIAL AND METHODS

The performed research was an observational cross-sectional study which was done in 2012. The participants included 100 patients older than 18 years who had bipolar disorder type 1 and referred to the Ebne-e-Sina psychiatric hospital in Bandar-Abbas. The sampling method was simple and available. Diagnosis of disorder was achieved by psychiatrist and using DSM-IV criteria. Diagnosis of Metabolic syndrome was done using ATP III-A, IDF and IRAN criteria separately and according to Table 1. To check the FBS, TG and HDL, the intravenous blood samplings was done after 12 h of fasting and were sent to lab. The waist size was measured in the middle of the distance of iliac crest and the lower rib. The blood pressure is measured after 5 minutes in sitting position of the right hand and repeated twice after 5 min. The average blood pressure is measured in the 3rd day of admission.

We gathered some data such as age, gender, education, illness duration, the type drug, the period of anti-psychotic usages, current and former smoking background and its duration,. The data were analyzed by using Chi-square and T-Test.

Table 1: Diagnosis of Metabolic syndrome according to ATP III-A, IDF and IRAN criteria.

variable		ATP III score	IDF score	Iran score
FBS	>100	1	1	1
	<100	0	0	0
TG	>150	1	1	1
	<150	0	0	0
HDL (women)	>50	0	0	0
	<50	1	1	1
HDL (men)	>40	0	0	0
	<40	1	1	1
Systolic BP	>130	1	1	1
	<130	0	0	0
Diastolic BP	>85	1	1	1
	<85	0	0	0
Waist circumference (women)	>88	1	1	1
	<88	0	0	0
Waist circumference (men)	>102	1	1	1
	<102	0	0	0

Findings

In this study, 100 patients with bipolar disorder between 18-60 years old are selected (n = 100). The mean age of participants was 34.5±12.5years old. 64 were males (64%) and 36 females (36%). The education level of them was as follow: 68% under diploma, 24% diploma and 8% university graduate.

The prevalence of metabolic syndrome according to three criteria was 20% (IDF), 15%(ATP) and 16% (Iran) and presented in Table 2.

Table 2: Prevalence of metabolic syndrome

critertia	gender	Metabolic syndrome			prevalence
		yes	no	Number	
ATPIII	Male	5(7.8%)	59(92.2%)	64	15%
	Female	10(27.8%)	26(72.2%)	36	
IDF	Male	9(45%)	55(68.8%)	64	20%
	Female	11(55%)	25(31.3%)	36	
Iran	Male	8(50%)	56(66.7%)	64	16%
	Female	8(50%)	28(33.3%)	36	

In following, the obtained results are according to ATP III criteria. The reason is that it is more popular than two others and provides the possibility of comparison with other researches results.

Based on ATP III criteria, 5 persons of 64 males (7.8%) and 10 persons from 36 females (27.8%) had metabolic syndrome. the prevalence of this syndrome among women were meaningfully more than men (P = 0.002).

It was perceived a meaningful relationship between age and prevalence of metabolic syndrome (P = 0.002) as its prevalence was higher at older ages. The statistical results have shown that there is no meaningful relationship between the smoking and the prevalence of metabolic syndrome (P = 0.056) but as there isn't much difference of P-VALUE with 0.05, it can be said that there is meaningful relationship between smoking and metabolic syndrome. The results of k-score indicated that there is no meaningful relationship between education and having metabolic syndrome (P = 0.101). There is no meaningful relationship between the syndrome prevalence and recognition period (P = 0.065).The duration of bipolar disorder in patients was 45.59±4.504 and the overall duration of it was high.

It wasn't observed an increased or decreased trend between the time of drug usage and the prevalence of syndrome. In another words, there is no meaningful difference between the syndrome prevalence and the time of drug usage. But, as the test meaningful level (P = 0.065) is close to 0.05 level. It can be said that there is a clinical direct relationship between the syndrome prevalence and the time of drug usage.

Our study indicated that sodium valproate (mode-stabilizing medicine) is the most used drugs by bipolar patients and then the other antipsychotic drugs include risperidone, olanzapine, perphenazine, chlorpromazine and lithium, respectively. But there was no meaningful relationship between using mode-stabilizing medicines and antipsychotic and the prevalence of metabolic syndrome in patients with bipolar disorder (P>0.05).

In this research, 27% and 44% of participants were used typic and atypic antipsychotic drugs and just 5% were used both drugs. The prevalence of metabolic syndrome among people who were used atypic drugs were more than those who were used typic ones. However, there was no meaningful relationship between using antipsychotic drugs usage and metabolic syndrome.

DISCUSSION

Obesity and overweight is popular among bipolar patients and have been considerably affected them. Obesity and metabolic syndrome have been resulted in increased economic costs and damages to quality living

both in public and bipolar disorder patients [12]. This research is done to investigate the prevalence of metabolic syndrome in patients with mood disorders who referred to Ebn-e- Sina Hospital during 2012-2013.

In our research, using ATP (III) criteria of metabolic syndrome prevalence in bipolar disorder patients was 15% while according to Hadaeg et al study, its prevalence in patients with normal weight was 9.9% and 11.1% in males and females, respectively [13]. According to Azizi et al, the metabolic syndrome prevalence among adults in Iran was 33.7% [14]. In Delavar research, it was 31% in females [15]. In Sharifi et al study which was done in Zanjan Province, it was reported 23.7% in urban population [16]. It can be generally concluded that due to the rate of done researches in Iran, the prevalence of this syndrome in bipolar disorder patients is less than general population. In an study done by Saadatian et al, [17] the prevalence of this syndrome in inpatient of psychiatric hospital was 39.8% which was higher than our study results. Some researches in other countries have shown that the prevalence of this syndrome in patients with bipolar disorder was more than our research such as Fagiolini et al in Pennsylvania State (30%) [18], Winkel et al in Belgium (16.7%) [19], Garcia-Portilla et al in Spain (22.4%) [20], Hung et al in Taiwan (46%) [21], Ezzaher et al in Tunisia (26.1%) [22], Maina et al in Italy (27.9%) [23], Salvia et al in another research in Italy (26.5%) [24]. In our research, the prevalence of metabolic syndrome among women with bipolar disorder was higher than men; there was a meaningful relationship between the gender and the prevalence of metabolic syndrome ($P=0.001$). In Ezzaher et al in Tunisia [22] and Garcia-Portilla et al in Spain [20] researchers, the prevalence of metabolic syndrome was higher in women than men, it didn't found a meaningful statistical relationship. In research which was done by Salvi et al [24] in Italy, it was indicated that the prevalence of metabolic syndrome is higher in men than women. In our research, there was a meaningful relationship between age and the prevalence of metabolic syndrome in bipolar patients ($P = 0.002$) as its prevalence in patients younger than 40 years old was less in patients with older than 40 years old. These findings were similar to Garcia-Portilla [20] et al, Salvi et al [24] and Ezzaher et al [22]. In our research, there was a meaningful relationship between smoking and the prevalence of metabolic syndrome ($P = 0.56$). This finding was similar to Salvi et al [24] and Hung et al [21]. There was no meaningful relationship between smoking and the prevalence of metabolic syndrome in Ezzaher et al [22] There was a meaningful relationship between mood stabilizer medicine (antipsychotic) and the prevalence of metabolic syndrome ($P>0.05$). In Garcia-Portilla et al research, it is indicated that bipolar disorder patients who have been used mood stabilizer medicines, are more exposed to have metabolic syndrome [20]. As Yumru et al research has shown that antipsychotic medicines have the most prevalence of metabolic syndrome [8]. In Salvi et al research, there was no clear relationship between mood stabilizer medicines (antipsychotic medicines) and the prevalence of metabolic syndrome [24]. In Ezzaher et al research, there was no difference between the prevalence of metabolic syndrome in bipolar patients who had used mood stabilizer medicines (antipsychotic medicines). However, patients who had used lithium had the most reported metabolic syndrome [22]. Hung et al research approved that using antipsychotic and mood stabilizer medicines such as lithium and sodium valproate had higher risk of having metabolic syndrome [21]. It is notable that the treatment of patients with bipolar disorders using lithium resulted in increased appetite which ultimately leads to increased metabolic syndrome [25]. There was no meaningful relationship regarding the prevalence of syndrome and time of diagnoses ($P = 0.065$). Their results are similar to those of Hung et al [21] and Salvi et al [24].

It can be said that the different results is due to genetics and citizens' living habits but it can't be definitely stated.

Recommendations

We recommend a study on normal population in this region to compare the prevalence of metabolic syndrome in bipolar disorder and normal population.

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