

EVALUATION OF METABOLIC SYNDROME AND ATTENTION ABILITY RELATIONSHIP IN SCHIZOPHRENIC PATIENTS

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ABSTRACT

Metabolic syndrome is common among patients with schizophrenia (40% -35%). This syndrome on cardiovascular mortality and is associated with reduced cognitive function. In Most of studies, attention deficit known as the central feature of schizophrenia. In this study, researchers have tried to assess attention in schizophrenic patients with metabolic syndrome. This study is a cross-correlation analysis. Those have been implemented in Razi Psychiatric Center in Tehran in 1392, at 5 acute ward on the 50 male and female patients. Wechsler test was used to assess attention Spss software for data analysis and statistical indicators and descriptive analytical and Pearson chi-square test at a significance level of 5% was used. Results showed that 58% (26) of participants were male and 42% (24) were women. And 52% of patients were aged between 43-37 years, and 56% single and 44% married. Maximum average cholesterol measured 183 with standard deviation of 20.35. And the average maximum waist circumference was 20/97 cm. Between metabolic factors and attention in schizophrenic patients with metabolic syndrome, there was no relationship. According to The study there is no relationship between attention in schizophrenic patients with metabolic syndrome, It is suggested that a similar study in the larger community and, if possible, be considered as control group.

KEYWORDS: schizophrenia attention , metabolic syndrome

INTRODUCTION

Problem Statement

Schizophrenia is one of the most common psychiatric disorders that involved 1% of the world's population. A large share of the mental disorders that are called Paranoid is related to schizophrenia. Among the Paranoids, schizophrenia caused the most severe impact on the life and personal hygiene leaves (1). About 40% of schizophrenic patients suffer from metabolic syndrome that are recognized by at least three clinical signs; high triglycerides, high blood pressure, high fasting blood glucose, high HDL and waist circumference obesity (2). Cognitive skills have a major impact on human performance. Schizophrenia is one of the strongest and resistant psychiatric disorders which are determined with abnormal understanding, delusional thoughts and destruction in the social and emotional areas. As well as, Attention Deficit is one of the main neurological features of these patients that can affect many symptoms of the disease (3). Attention Deficit is a determined symptom of schizophrenia, therefore the schizophrenia cognitive impairments can cause other disorders. Attention Deficit is considered as a main feature of schizophrenia by different studies (4). Generally, performance difficulties in patients with mental disorders are due to neurological problems. Some studies emphasized, schizophrenia is a brain disorder that cause destruction of many cognitive abilities, especially; Attention ability. It refers to Dorsolateral Prefrontal Brain Morphology problem in patients with impaired attention. (5) Numerous empirical studies have shown, patients with schizophrenia have difficulty in maintaining attention. (6) Posner et al proved in a study that retention of attention is one of the attention functions that impacts on the higher aspects of attention (selective attention, divided attention), cognitive capacity, the ability of diagnosis and choice of appropriate stimulus and it even influence on the self-awareness. It seems according to conducted study, this process is defective in schizophrenic patients. Therefore in first attack in schizophrenic patients who were not treated, cognitive impairment was observed in following components; verbal memory, learning, attention, consciousness and processing of motor-visual information

MATERIALS AND METHODS

Present research is a correlating-analytical study with cross-sectional design. It was conducted in Razi Psychiatric Center-Tehran in 2013. 5 men and women acute units of 7 were involved in research. The population of study was the whole of schizophrenic patients with metabolic syndrome disorder who their metabolic disorder was confirmed through scientific assessments and schizophrenia was diagnosed by psychiatrist and 2-3 years have been passed since the time of diagnosis. In each unit of Razi Center, 10 schizophrenic patients with metabolic syndrome randomly were selected.

These patients were those who were repeatedly hospitalized. Lastly, 50 individuals (24 females and 26 males) were selected to participate in research. Patients had at least three of five symptoms of metabolic syndrome (high triglycerides, diabetes, and hypertension, abdominal and pelvic obesity, and high HDL). Patients were not categorized in certain age groups, in order to get full confidence of the metabolic syndrome in these patients, they were re-evaluated individually, and following demographic data were recorded; high blood pressure (140/80) was measured by digital blood pressure device (in this regard the patients were asked about their disease and they declared that hypertension was developed after taking Psychiatric drugs.) In order to ensure high fasting blood sugar, glucose test was considered at 110 mg/dl (all patients declared, after taking the pills their blood sugar has gone up and previously they had not Diabetes). In the case of abdominal and pelvis obesity, waist circumference was measured by meters, over than 105 cm for men and 85 cm for women was considered obese and less than it was considered natural, (the patients declared, their appetite were increased and they obsessed due to taking pills). Ensuring high-triglycerides and high HDL, related medical tests were carried out. However, the patients suffered from high-triglycerides and consumed pills, high-triglycerides and HDL tests were performed after fasting 12 hours. Stroop Effect Test was applied to evaluate the Attention. This test was built to evaluation of selective attention in 1935 by Stroop. (Lezak, 1995) and Golden (1975) reported following reliability coefficients 85% and 82% and 37% for single-point versions. This test is used to assess the cognitive processing and attention. Three cards are offered to respondent; first one is the "color card" on which there are many patches of four colors (green, blue, red and yellow). Respondent is asked to name the colors. Next card is "vocabulary card" on which are printed different vocabularies in various colors. Respondent should name the color of vocabularies regardless of their colors.

The third card is "color-word card" on which are printed the names of the colors, but printed in an ink of a conflicting color (e.g. the word RED might be printed in green, yellow, or blue, but never in red). Respondent is asked to name the color of vocabularies regardless of their meaning. The needed time for reading each cards are recorded. Time difference between "color card" and "color-word card" used as paradoxical distinction. After the Wechsler test, patients relaxed for short time then in order to evaluation attention factor in these patients, the test was performed by Stroop test software. Initially the procedure was explained to the patients and told them that the test has 3 steps. Then following instruction was presented to them; at first you will be presented with a series of color patches on the monitor (blue, yellow, green, red) as you see color, you should mark the sign of color. On the second step, instead of colored patches, colored word will appear and you should click on the color regardless to the meaning. In the third stage full colored cards will appear. In the middle of these cards a word with different color (blue, yellow, green, red) is written. You should select the meaning that word described and specify it by clicking on mouse. After the description, patients were called and individually test was administered and was recorded in a very private and quiet room with proper lighting. During the test, patients were saying "I have tired, I want cigarette, I want tea leaves, I want to do, or may I leave if I collaborate?" In some cases, patients had such an impaired attention that I was forced to explain the test again. Even some patients were saying "my mind does not work at all".

RESULTS

The results showed that 58% (26 individuals) of participants were men and 42% (24 individuals) were women. 52% of patients were between 43-37 years old. 56% were single and 44% were married, 30% had Diploma and 34% had associate of art degree.

Table 1: Frequency and percentage of the sample group regarding metabolic syndrome classification (n = 50)

Percentage	frequency	indexes of metabolic syndrome	Categories
20	10	TG - HDL - X Subjects with high TG, HDL and one other syndrome.	Group I
10	5	TG - FBS - X Subjects with high TG, FBS and one other syndrome.	Group II
48	24	HDL - FBS - X Subjects with high FBS, HDL and one other syndrome.	Group III
22	11	Subjects who suffer from more than 3 syndromes.	Group IV

The figures of table1 show that Group I consists of 20% of subjects who have high TG and high HDL with a syndrome. In group II, 10% of subjects have high TG and high FBS with a syndrome. In Group III, 48% of subjects have high HDL and high FBS with a syndrome and 22% of patients in group IV, are the subjects who suffer from more than 3 syndromes.

Table 2: Mean and standard deviation of metabolic factors in the sample group

Categories Variables	Group 1 (10)		Group 2 (5)		Group 3 (24)		Group 4 (11)		Total (50)	
	Mean	standard deviation	Mean	standard deviation	Mean	standard deviation	Mean	standard deviation	Mean	standard deviation
1 Height	170/169	8.86	173/80	15.4	170.54	80.6	169,178	6.29	170.36	6.87
2 Weight	77.70	10.72	60.92	12.40	63.79	13.91	81.18	12.70	88.80	13.20
3 Min blood pressure	70	10.54	82	8.37	83.80	9.74	80	10	60.78	10.5
4 Max blood pressure	119	9.94	146	17.82	143.96	16.20	150.91	55.18	140.70	20.80
5 Sugar	152.90	21.49	178.40	6.84	165.71	21.74	164.55	17.35	164.16	20.49
6 triglyceride	204.60	12.09	218.40	17.89	191.79	11.31	200.82	14.37	199	15.2
7 Cholesterol	172.80	9.66	153.40	14.10	180.08	10.76	183	20.35	176/60	15/41
8 waist circumference	86/10	6/62	97/20	10/90	92/86	10/64	88/18	13/62	88/06	10/89

Table 3: Correlation coefficients between metabolic factors and the ability of attention and result correlation test

	Height	Weight	Minimum blood pressure	maximum blood pressure	Sugar	TG	Cholesterol	waist circumference	attention ability
Height	1								
Weight	**0.371	1							
Minimum blood pressure	0.143	0.195	1						
maximum blood pressure	0.193	0.125	**0.741	1					
Sugar	*0.335	**0.448	0.122	-0.034	1				
TG	0.128	0.199	*0.280	0.173	0.043	1			
Cholesterol	0.256	**0.749	0.003	-0.076	**0.401	0.096	1		
waist circumference	**0.581	0.196	-0.016	-0.021	0.239	-0.149	0.156	1	
attention ability	0.112	-0.177	0.168	0.217	-0.007	-0.022	0.049	-0.143	1

* Significant at level 0.05; ** significant at level 0.01

The data of table 2 show the range of patients' height from 169 to 173 centimeters. Average of Minimum weights was 60.92 kg and that max was 88/80 kg. Minimum diastolic blood pressure was observed in group A (70 mm Hg) and the average of maximum diastolic blood pressure was 83.80 mm Hg. the average of maximum systolic blood pressure was 150.91 mm Hg. the average of maximum sugar was 178.40 and the standard deviation was 60.84. Average of Maximum measured triglycerides was 218.40. Average of maximum measured cholesterol was 183 with standard deviation 20.35. The average of maximum waist circumference size was 97.20 cm.

The data in Table 3 show that there is a significant relationship at level of 0.01 between following variable; height and weight, the minimum and maximum blood pressure, blood sugar and weight, and between cholesterol with blood sugar and weight, waist circumference and height. As well as, there is a significant relationship at the level of 05% between these variables; blood sugar and height, triglycerides and minimum blood pressure. However, there is no significant relationship between metabolic factors and attention ability in schizophrenic patients with metabolic syndrome.

DISCUSSION

Schizophrenia disorder is associated with different symptoms. However, in recent studies the cognitive deficits such as Attention difficulties were emphasized (6, 7). Among cognitive functional defects, attention damage can affect other symptoms. In many studies attention deficit considered as main symptom of schizophrenia disorder. The results of the present study showed that metabolic factors and attention in schizophrenic patients with metabolic syndrome had not a significant relationship. However there is a significant relationship between patient's blood sugar and weight which can be due to the impact of drugs on the patient's weight and blood sugar. As well as these drugs caused an interaction between cholesterol, glucose and weight consequently due to individual's obesity, cholesterol levels were increased. The Approximately 48% of subjects suffered from (group III) high HDL, FBS with a syndrome that can be aroused due to influence of psychiatric drugs. Drugs may increase blood sugar and obesity, then these factors in their turn cause of high HDL. Group IV (subjects who had more than four syndromes) has the greatest average of weigh. It can be due to the complexity and association of several symptoms of metabolic syndrome which cause severe conditions and lead to double obesity. As well as the group had highest average of Systolic blood pressure (150.91) and cholesterol level was (180). Also mentioned conditions were applied to this group. The group II (subjects with TG and FBS and a type of syndrome) had the highest level of blood sugar (187.4), triglycerides (218.4) and waist circumference (97.2). In Mitchell's study, waist circumference was considered as a predictor of metabolic syndrome (11). Study that was conducted in Taiwan by Huang et al confirmed that in prevalence of metabolic syndrome in patients with schizophrenia; BMI >24 and Age >40 represent a risk of metabolic syndrome. Crete et al study which was entitled "prevalence of metabolic syndrome and related factors in patients with Schizophrenia" showed that increasing of abdominal fat and low levels of HDL may be the best predictor of metabolic syndrome, as well as the prevalence of the syndrome increases with aging. Regarding the findings of present study there was no significant relationship between attention ability in schizophrenic patients with metabolic syndrome, it is recommended to conduct a similar study in larger community with a control group.

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