

ORIGINAL ARTICLE

METABOLIC SYNDROME IN PSYCHIATRIC PATIENTS WITH
PRIMARY PSYCHOTIC AND MOOD DISORDERS

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Abstract

Objective: A study was conducted at the Universiti Kebangsaan Malaysia Medical Center (UKMMC) adult psychiatric clinic from June 2006 to December 2006. The aim was to assess the rate of the metabolic syndrome in a group of outpatients with mood disorders and schizophrenia and also to determine the relationship of this condition with sociodemographic factors and psychiatric illness characteristics. **Methods:** A total of 51 subjects agree to participate of which 100 were approached. The International Diabetes Federation (IDF)(2005) criteria are used for the diagnosis of metabolic syndrome and Diagnostic Statistical Manual Version IV (DSM-IV) criteria are used to made psychiatric diaognosis. **Results:** The prevalence of metabolic syndrome was found to be 37.2% and was significantly higher amongst mood disorders patient. However the metabolic syndrome is not associated with the anti psychotic therapy ($p=0.41$). **Conclusion:** This study suggests that it is important for the psychiatrist to monitor metabolic syndrome in any of their patients. *ASEAN Journal of Psychiatry, Vol.10(2): July – Dec 2009: XX XX.*

Keywords: metabolic syndrome, schizophrenia, mood disorders, anti psychotic

Introduction

Psychiatric and physical disorders commonly occur together. Numerous studies have found the association between physical and psychiatric disorders among general hospital patients. Surveys in medical wards have shown that over a quarter of inpatients

have psychiatric disorders [1]. Conversely physical illness is frequent among psychiatric patients and undetected in at least 50% of cases [2]. According to Allbeck [3] individual with psychiatric disorders have higher tendency to suffer from physical illness and has shorter life span than normal population. Risk of premature mortality is

increased in schizophrenic and unipolar or major depressive disorder patients [4]. In a survey of psychiatric inpatients with chronic mental illness, 72% was found to have undiagnosed medical illness [5]. In severe mentally ill patients the presence of medical illness complicates the management and worsened the prognosis. This is mainly due to high rates of diabetes and cardiovascular disease [6]. The mechanisms leading to increased rates of diabetes and cardiovascular disease in this population remain uncertain.

Metabolic syndrome is an intermediate stage toward the development of non-insulin dependent diabetes and cardiovascular disease [7,8]. The basic change in this syndrome is the accumulation of visceral fat which is more insulin-resistant than lower-body adipose tissue. In addition to that visceral fat causes increased free fatty acids in the systemic circulation which subsequently leads to reduced glucose tolerance, increased blood pressure, and dyslipidemia.

This study was aimed at assessing the rate of the metabolic syndrome in a group of outpatients with mood disorders and schizophrenia and determining the relationship of this condition with demographic and psychiatric illness characteristics.

Methods

The study population consist of consecutive adult psychiatric patients attending Universiti Kebangsaan Malaysia Medical Center (UKMMC)) outpatient psychiatric clinic with DSM-1V diagnosis of

Schizophrenia and mood disorder from June 2006 to December 2006. The inclusion criteria were those under the care of a single attending psychiatrist and consented to participate. One hundred consecutive patients attending the UKMMC psychiatric clinic were approached. From these, 51 patients had agreed to participate in the study.

Assessment

Patient's demographic profile, psychiatric and medical histories were obtained from case notes. Medication history was based on information documented in the medical record as well as reports from the patient. The blood pressure was recorded twice and the average was taken. Measurement of waist circumference was done on the first visit and blood investigation for fasting lipid and fasting sugar were obtained on the next day.

International Diabetes Federation (IDF)(2005) criteria were used for the diagnosis of metabolic syndrome [9]. According to IDF a person is having metabolic syndrome when he /she has a central obesity with waist circumference of ≥ 94 cm in men or of ≥ 80 cm in women; and any of the two of four other risk factors :
- 1) elevated serum triglycerides ≥ 150 mg/dL (1.7 mmol/L); 2) low serum HDL cholesterol < 40 mg/dL (1.03 mmol/L) in men or < 50 mg/dL (1.29 mmol/L) in women ; 3) high systolic blood pressure (≥ 130 mm Hg) or high diastolic blood pressure (≥ 85 mm Hg) ; 4) high fasting plasma glucose level ≥ 110 mg/dL (5.6 mmol/L)

Statistical analysis was done with the SAS for a personal computer. A non-parametric Chi-square test was performed on

categorical data. For values of 5 or less in the cell, Chi-square with Yates correction was performed. Significant level was set at 0.05.

Results

The demographic characteristics of the study sample are summarized in Table 1.

Table 1: The demographic characteristics of the study sample

Variables	Total (n)	With Metabolic Syndrome	Without Metabolic syndrome	<i>p value</i>
All subjects	51	19 (37.2%)	32	
Gender				
Male	21	12	9	0.01
Female	30	7	23	
Race				
Malay	38	16	22	0.43
Chinese	10	2	8	
Indian	3	1	2	
Mean age	44.07	49.61	41.13	0.03
Educational Level				
Primary	11	2	9	0.03
Secondary	28	9	19	
University	12	8	4	

Overall prevalence of the metabolic syndrome in this group of psychiatric

outpatients was 37.2% (N = 19). Subjects with the metabolic syndrome were older (p

=0.03) and more male patients were having metabolic syndrome than females. Subject with higher educational level have higher rate of metabolic syndrome than those with

lower educational level. The metabolic syndrome is significantly higher amongst mood disorder patients as compared to schizophrenia (Table 2).

Table 2: Metabolic syndrome & Diagnosis

Diagnosis	Metabolic Syndrome	No Metabolic Syndrome	Total
Mood disorders	13	18	31
Schizophrenia	3	17	20

$P=0.04$

Table 3 and 4 shows that family history of individual risk factor such as diabetes and

hypertension do not affect the risk of developing metabolic syndrome.

Table 3: Metabolic Syndrome and family history of hypertension

Family History Hypertension	Metabolic Syndrome	No Metabolic Syndrome	Total
Present	5	12	17
Absent	14	20	34
	19	32	51

$P = 0.41$

Table 4: Metabolic Syndrome and family history of diabetes

Family History Diabetes	Metabolic Syndrome	No Metabolic Syndrome	Total
Present	4	14	17
Absent	10	19	34
	19	32	51

$P = 0.57$

Table 5 shows that metabolic syndrome is not associated with antipsychotic therapy

Table 5: Metabolic Syndrome and treatment with antipsychotic

Treatment with antipsychotic	Metabolic Syndrome	No Metabolic Syndrome	Total
Present	8	23	31
Absent	11	9	20
	19	32	51

$P = 0.41$

Discussion

In this group of seriously mentally ill patients, 37.2% met criteria for the metabolic syndrome as defined by IDF. This rate is elevated, compared with the rate of 21.4% found in studies in United States' general population [10]. However it is compatible with 38% prevalence rate in a study on inpatients with severe psychotic and mood disorders [11].

Metabolic syndrome in this study is higher in male and more common in elder age group. This is in accordance with general knowledge that males are more prone to metabolic disorder as compared to female. Higher age in general make people more predisposed to metabolic syndrome.

People with higher educational level were at increased risk for the metabolic syndrome, since educational status is usually associated with higher socioeconomic status, this suggests that those of higher socioeconomic status may be at increased risk of developing metabolic syndrome. This could be associated with increased in rich food and more sedentary style of living in higher

educational group which usually parallel with higher socioeconomic status. [12]

Family history of diabetes and hypertension is not associated with risk of developing metabolic syndrome; this indicates that other environmental or acquired factors relating to the mood or psychotic illness have more influence in the development of metabolic syndrome than genetic factors.

The finding of mood disorder is more likely to be associated with metabolic syndrome as compared to schizophrenia is something new. Most of the studies in the past had shown that schizophrenic patients are predisposed to metabolic syndrome but very few studies had looked into the relative risk of mood disorder especially unipolar depression and metabolic syndrome. Associations of metabolic syndrome and psychological symptoms have been studied [13]. Studies in psychiatric settings have found that patients with bipolar disorder have an increased prevalence of diabetes compared with the general population [14]. This finding is important since the prevalence of mood disorder in general population is higher than schizophrenia and

hence more effort is required to prevent them from developing metabolic syndrome.

The other importance finding in this study is that the utilization of antipsychotic was not associated with the occurrence of metabolic syndrome. Majority of patients in this study were mood disorders patients and most were not on antipsychotic but on antidepressant and mood stabilizer while all psychotic patients were on antipsychotic. This indicate that other drugs (antidepressant as well as mood stabilizer which is known to contribute to weight gain) and not antipsychotic alone could predisposed them to metabolic syndrome. Furthermore association of some atypical anti psychotics in causing metabolic syndrome, had not been consistently shown. [15, 16]

Several reasons could be postulated to explain why severe mood and psychotic disorders more likely to have increased rates of the metabolic syndrome. Amongst the factors are sedentary lifestyles, high fat and carbohydrate diets, are common in patients with severe mental illness [17, 18]. Utilization of medication for example atypical antipsychotic have been shown to be associated with obesity, dyslipidemia, and hyperglycemia which are three features of the metabolic syndrome [19,20] even though not replicable in other studies [15,16].

In addition to the above reasons severe mood and psychotic disorders (depression and schizophrenia) are known to be associated with abnormal regulation of the hypothalamic-pituitary-adrenal [HPA] axis, which has been implicated in the

development of the metabolic syndrome [21-25].

There are limitations to this study. First, is the type of study which was cross-sectional. Second, the small sample size which restricts the analysis to detect significant differences among potentially important variables. Finally, there was no normal population control without psychopathology. Despite these limitations, the findings in this study are in accordance with high rates of the metabolic syndrome found in other psychiatric populations.

In the light of the findings in this study and others, psychiatrists should consider measuring BP and waist circumference, two components of the metabolic syndrome, as well as monitoring of weight which are easily assessed in the clinic setting, in addition to measuring fasting glucose, and lipids [26-29]. This is important for early intervention to reduce the high rates of cardiovascular morbidity in severely mentally ill patients.

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