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PREVALENCE OF METABOLIC SYNDROME AMONG PATIENTS OF OBSESSIVE COMPULSIVE DISORDER: A CROSS-SECTIONAL STUDY

Psychiatry

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ABSTRACT

Introduction: Metabolic syndrome (MS) is highly prevalent disorder among general population and shows an even higher prevalence among psychiatric patients. The prevalence of the MS among psychiatric patients has previously been studied in association with schizophrenia, bipolar disorder and depression. Till date the studies investigating the relation between MS and specific anxiety disorders are very few.

Objectives: 1.To find out prevalence of MS in drug naïve Obsessive compulsive disorder (OCD) patients. 2. To compare the severity of disease in OCD patients having MS and not having MS.

Methods: It was a cross sectional study. Eighty two drug naïve patients with OCD were assessed for prevalence of MS and severity of disease.

Results: The prevalence of MS was found to be 32.9%.Low high density lipoprotein (HDL) was the most common criteria met (73.1%).OCD patients having MS was found to have more severe level of disease than OCD patients not having MS.

Conclusion: This is among one of few studies that examined the prevalence and correlates of MS in a sample of patients with OCD. Our cross-sectional evaluation found a prevalence of MS in accordance with other studies. Prospective studies with large sample groups are clearly needed to assess relationship between OCD and MS and other Anxiety disorders

KEYWORDS:

Obsessive Compulsive Disorder, metabolic syndrome, prevalence, severity, correlates.

Introduction: Metabolic syndrome (MS) is a combination of several factors which may share a common etiology and each of which is a risk factor for cardiovascular disease. Depending on the definition used, the metabolic syndrome may include measures of general obesity , central obesity, dyslipidemi, hyperglycemia, high blood pressure and resistance to the action of insulin.

Obsessive Compulsive Disorder (OCD) is projected to be among the ten leading causes of global disability by the World Health Organization.[1] A patient with OCD may have an obsession or compulsion or both. The rate of OCD are fairly consistent with a life time prevalence in general population at 2-3%. Some researchers have found it to be 10%. Persons with OCD are commonly affected by other mental disorders. The lifetime prevalence of major depressive disorder in persons with OCD is about 67%.[2]Several studies looked at whether patients with serious mental illness have an increased prevalence of the metabolic syndrome in comparison to the general population.[3,4,5,6,7.] In 2 cross-sectional studies presented by Kato and colleagues in 2003, using the National Cholesterol Education Program ATP III criteria, a 60% prevalence rate of metabolic syndrome was estimated among 63 schizophrenic outpatients, and a 75% prevalence rate was estimated among 16 mood disorder patients of Hispanic origin. [8,9]

Most of the studies which have evaluated the prevalence of MS in OCD have been done on patients taking treatment. A study by Konstantinos et al reported a positive association between depression and Obsessive- Compulsive Disorder and the metabolic profile (controlled or uncontrolled). Patients with higher scores have higher odds of being un-controlled diabetic patients[10]

There is, dearth of studies investigating metabolic syndrome in patients with OCD. Helmut et al found significant increased cholesterol level in OCD and other anxiety disorder patients.[11]Maina et al found significantly more obesity in bipolar patients than OCD.[12] Likewise one more study found MS prevalence higher in bipolar sample than OCD.[13]Douglas carroll et al found significant association between major depressive disorder (MDD) and GAD with MS.[14]Pia et al in a comparative study between MDD and PTSD found prevalence of MS more in PTSD group.[15]Surenda K Matto in a study found MS to be less prevalent in OCD patients.[16]On the other hand Shiny Jhon et al found no significant association between low lipid profile and various psychiatric disorder.[17]

There are limited data on the prevalence of metabolic syndrome in

patients with OCD who are drug naive. Therefore, this study is justified to find out the prevalence of metabolic syndrome in drug naive OCD patients. There is relative dearth of studies evaluating the relationship between OCD and metabolic syndrome worldwide justifying the need for the present study.

Subjects and methods: The study was carried out at the outpatient unit of a multispecialty tertiary care hospital from Janaury 2015 to August 2016.

sample were the divided according to the presence and absence of MS.Inclusion criteria were OCD patients of age 18-60 years diagnosed as per ICD-10 criteria, only physically active patients were included (patients will be physically active if they regularly engage in any aerobic type of activity, at least twice per week for twenty minute,these activities include walking, jogging, swimming or garden/yard work) and patients who will give informed consent. Exclusion criterias were patients who were taking medication for OCD, history of co-morbid substance abuse, pregnant patients, patients with co-morbid psychiatric and other medical illness. Examination included a thorough physical examination, assessment of vital parameters, anthropometry, systemic examination and mental status examination. Yale Brown Obsessive Compulsive scale was used for assessing the severity of OCD.

Anthropometric and metabolic assessment: Body weight (to the nearest of 0.5 kg) and height (to the nearest of 0.001m) were recorded in subjects without shoes and wearing only light indoor clothes. Body mass index (BMI) was calculated and waist circumference was measured midway between the iliac crest and the lower most margin of ribs. Fasting venous blood sample was collected under aseptic conditions to measure the blood glucose (fasting blood sugar (FBS), triglycerides (TG), and high-density lipoprotein (HDL) levels. MS was diagnosed by using the consensus definition for MS.[18]

Statistical analysis: Analysis was done using the SPSS version 20.0 for windows (chicago, illinois, usa). Frequencies with percentages were calculated for categorical variables and mean and standard deviation were calculated for continuous variables. Those with and without MS were compared using the chi-quare test and t-tests. All the tests were two tailed, and p value of $p<0.05$ was considered significant.

Results: eighty two patients of OCD fulfilling the inclusion criteria were included in the study. Table 1 highlights the sociodemographic

variables of the patients. The mean age of study group in years was 30.97±9.56. Males were 31 (37.8%) in number and females were 51(62.2%).Married patients outnumber the unmarried with 56.1% married vs. 43.9% unmarried. In education secondary pass constitute 22% of total sample, followed, by intermediate (20.7%), illiterate (19.5%), graduate (14.6%), middle (11.0%), primary (8.5%) and post graduate (3.7%).it was found that 35.4% of cases were from rural areas and 64.6% were from urban areas. 30.5% of study subjects were housewife by occupation, 23.2% students, 18.3% were in govt./pvt. jobs,11% were self employed, 9.8% were in agriculture and 7.3% were unemployed. among the family type 65.9% were living in nuclear family while 34.1% were living in joint family. in the total sample 54.9% were hindu and 45.1% were muslims.

Table 1-sociodemographic characteristics of patients

Variables	OCD Patients(n=82)
AGE Mean(SD),years	30.97(±9.56)
SEX:	
Male, n (%)	31(37.8)
Female, n (%)	51(62.2)
MARITALSTATUS, n (%)	
married	46(56.1)
unmarried	36(43.9)
Divorced/Separated	0(0)
Widow/widower	0(0)
EDUCATION, n(%)	
Illiterate	16(19.5)
Primary	7(8.5)
Middle	9(11.0)
Secondary	18(22.0)
Intermediate	17(20.7)
Graduate	12(14.6)
Post graduate	3(3.7)
LOCALITY n (%)	
Rural	29(35.4%)
Urban	53(64.6%)
OCCUPATION n (%)	
Student	19(23.2%)
Housewife	25(30.5%)
Self Employed	9(11%)
Govt. /Pvt. Job	15(18.3%)
Agriculture	8(9.8%)
Retired	0(0%)
Unemployed	6(7.3%)
INCOME n (%)	
<1802	1(1.2)
1803-8988	21(25.6)
8989-18000	34(41.5)
>18001	26(31.7)
FAMILY n (%)	
Nuclear	54(65.9%)
Joint	28(34.1%)
RELIGION n(%)	
Hindu	45(54.9%)
Muslim	37(45.1%)

Table 2 showing showing prevalence of metabolic syndrome which came out 32.9% that is it was present in 27 subjects among total sample of 82 subjects.

Table-2 Prevalence of Metabolic Syndrome

Metabolic syndrome	No (%)
Present	27(32.9)
Absent	55(67.1)

Table 3 showing the prevalence of different components of MS. Low HDL-C was the most frequent criterion met (73.5%), followed by increased WC (53.6%). High blood pressure, raised FBS and increased TG level were observed in 45.1%, 21.9% and 19.5% of the sample, respectively.

Table 3-Prevalence of components of MS

Component	N (%)
Increased Waist circumference(WC)	44(53.6)
Hypertriglyceridemia(≥150 mg/dl)	16(19.5)
Low HDL-<40: mg/dl (men) <50 mg/dl(women)	60(73.1)
High blood pressure ≥130/85 mmg/Hg	37(45.1)
High fasting glucose:>100 mg/dl	18(21.9)

Figure 1 shows that patients having metabolic syndrome suffered from more severe level of disease than patients not having metabolic syndrome. In MS present group most patients falls in severe category using YBOCS while in MS absent group most patient falls in moderate category.
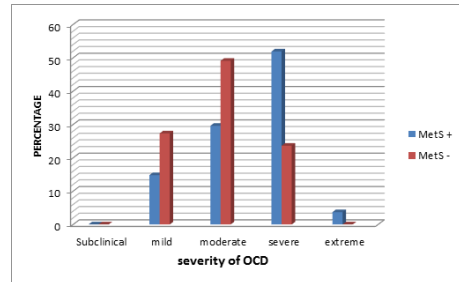

Figure 1

We also calculated the mean score for the severity of disease in MS present and absent group separately, the result of which is shown in table 4. Mean score in MS present group was 23.48±5.32 while the mean score in MS absent group was 19.31±5.10 and the difference was significant with p value of 0.001.

Table-4

	MS present	MS absent	T value	df	P value
Score(YBOCS)	23.48±5.32	19.31±5.10	3.41	80	0.001

Discussion: The present study was conducted to find out the prevalence of metabolic syndrome in drug naive Obsessive Compulsive Disorder patients. MS was present in 32.9% of sample. This was in accordance with the study done by Anna et al which shows high rate of prevalence of metabolic syndrome regardless of the diagnosis and antipsychotic use. There study demonstrated similar prevalence rates of the metabolic syndrome in individuals treated with antipsychotics (54%) and those not on antipsychotic medications (46%).[19]

On the other hand our finding was not in accordance with the study conducted by Giuseppe Maina et al who found that overweight is significantly more prevalent in drug-naive patients with Bipolar Disorder than in OCD patients.[12] Shiny Jhon et al., (2014) reported no relation between any of the psychiatric disorder and lipid profile.[17]

Prevalence of individual components of metabolic syndrome: We found Low HDL as the most frequent criteria met (73.1%), followed by abdominal obesity (53.6%). Hypertension, raised FBS and increased TG in 45.1%, 21.9% and 19.5% of sample respectively.

U Albert reported high blood pressure as the most frequent finding (42.3%) followed by abdominal obesity (36.5%), increased triglycerides (23.1%), low HDL (22.1%) and raised fasting glucose in 4.8% of sapmle.[20] Anna Gubbins et al., (2012) reported central obesity as the most frequent criteria in 88% of sample followed by hypertriglyceridemia in 43.1%, hypertension in 41%, raised blood sugar in 32% and low HDL-C in 29% of cases.[19]

Seerat Husain Beigh et al reported hypertension in 38% of sample followed by low HDL in 36%, raised triglycerides in 33%, obesity and hyperglycemia each in 29% of cases.[21] The common component of metabolic syndrome in our study is central obesity and low HDL-C. This finding is not surprising as it has been seen that central obesity plays a central role in the development of MS and appears to precede the appearance of other metabolic component.[22,23]

Metabolic syndrome and severity of OCD: OCD Patients having MS reported severe level of the disease, followed by moderate and mild level of severity and minimum extreme level of severity was reported. Whereas maximum OCD patients reported, moderate level of severity in group without metabolic syndrome, followed by mild and severe

level of intensity. One of the possible explaination for these values can be that anxiety is reported more common in OCD patients and its one of the important criteria in the diagnosis of OCD.

Anxiety triggers activation of the human stress system through behavioural and physiological changes that improve the ability of the organism to adjust homeostasis and increase its chances for survival. These processes appear to adversely affect autonomic and hormonal regulation, resulting in metabolic abnormalities, inflammation, insulin resistance and endothelial dysfunction.[24] The most accepted underlying mechanism relies on the hypothesis that increased activation of the hypothalamic-pituitary-adrenocortical (HPA) axis could be pathophysiologically involved in the concomitant occurrence of the typical metabolic syndrome risk factors and stress.

Conclusion: To conclude, the present study reveals that 32.9% of the patients with OCD have MS. While assessing the prevalence of different component of metabolic syndrome, low HDL-C was the most frequent criterion met (73.5%), followed by increased WC (53.6%). High blood pressure, high FBS and hypertriglyceridemia were observed in 45.1%, 21.9% and 19.5% of the sample, respectively. Mean score for assessing the severity of OCD found to be more in patients having MS and it was significant when compared it with patients in which metabolic syndrome was absent (p=0.001).

Limitations: The findings of the present study must be interpreted in the light of limitations of the study which includes Study design which is cross-sectional so it does not allow inferences on the temporal relationship between the variables. Prospective studies are clearly needed in this area to fully examine the long-term health risk related to OCD. A larger sample would have provided more reliable results, so subsequent research should include a larger number of subjects, another limitation is the lack of a control group from the general population, one more limitation is that the study was done at tertiary care centre, so the participants may not be representative of community.

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