Diabetes & Metabolic Syndrome: Clinical Research & Reviews xxx (2017) xxx–xxx

Contents lists available at ScienceDirect

Diabetes & Metabolic Syndrome: Clinical Research & Reviews

journal homepage: www.elsevier.com/locate/dsx

Original Article

Metabolic syndrome in drug naïve schizophrenic patients

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ARTICLE INFO

Article history:
Available online xxx

Keywords:
Schizophrenia
Drug naïve
HDL
FBS
TGs
Waist circumference
BMI

ABSTRACT

Introduction: Research in the last decade tried to focus on natural and unnatural causes of death in schizophrenic patients, but recent few years has focussed on emerging cardio-metabolic risk factors, as a cause of mortality in such patients.
Aim of the study: To assess the determinant of metabolic syndrome in drug naïve schizophrenic patients.
Methodology: It was a cross sectional study; 30 indoor patients with diagnosis of schizophrenia were included. Height, weight, waist circumference and Blood pressure assessment was done by using standard protocol. Fasting Blood Glucose (FBG), Triglyceride (TGs), High Density Lipoprotein (HDL) cholesterol, Low Density Lipoprotein (LDL) total cholesterol were measured. International Diabetes Federation (IDF) criteria was considered for establishing metabolic syndrome. Statistical analysis was done by using chi square and ANOVA.
Results: Majority of the patients were females; hailing from rural area; unskilled professional; educated up to below primary level; were single and Hindu by religion. Most common metabolic abnormality was low HDL in 76.6%; High TGs in 26.6%; High SBP ≥130 mm Hg in 16.67%; DBP>85 mm Hg in 13.33%; High FBS 10% of the patients.
In risk assessment strongest risk factors for metabolic syndrome were high waist circumference, FBS and TGs. BMI, total cholesterol, LDL and VLDL were also observed as a risk factors in drug naïve schizophrenic patients.
Conclusion: HDL, FBS, TGs, waist circumference and BMI are all the strong risk factors for development of metabolic syndrome in drug naïve schizophrenia patients.

1. Introduction

Research in last decade has established the increasing mortality and reduced life span in schizophrenia patients [1]. It has seen that standard mortality ratio is almost 2–3 times higher than the general population. The gap in life expectancy of schizophrenic patients has widened largely which is translated up to 13–30 life years than general population [2]. Last decade attributed the mortality in schizophrenic patients to suicide, cancers, respiratory diseases and some other natural and unnatural causes of death [3]. But the current research done in last five years has put light on emerging trends of cardio-metabolic risk factors and their attribution to increased mortality in schizophrenia [4]. Thus identification and modification of these cardio-metabolic risk factors in schizophrenic patients, a very new and fancy concept of metabolic syndrome came into limelight. So, as preventive aspects to reduce the mortality in schizophrenic patients and thus reducing the overall burden on healthcare system, a psychiatrist must be aware of and should be sceptical for metabolic syndrome.

1.1. What is metabolic syndrome?

Metabolic Syndrome (MS) is an entity of various clinical abnormalities ranging from hypertension, insulin resistance, dyslipidaemia, obesity, impaired glucose regulation and micro-albuminuria [5]. MS contributes to an increased risk of diabetes and myocardial infarction.

The new International Diabetes Federation (IDF) criteria [6] for metabolic syndrome include:

a. Increase in waist circumference (≥80 cm for females and ≥90 cm for males of Asian origin)
b. Two or more of the following:
   - Raised triglycerides ≥150 mg/dL (1.7 mmol/L) or specific treatment for this lipid abnormality.
   - Reduced High Density Lipoprotein (HDL) cholesterol <40 mg/dL (1.03 mmol/L) in males and <50 mg/dL (1.29 mmol/L) in females or specific treatment for this lipid abnormality.

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https://doi.org/10.1016/j.dsx.2017.11.006
1871-4021/

- Raised blood pressure systolic blood pressure (BP) ≥130 or diastolic BP ≥85 mm Hg or treatment of previously diagnosed hypertension.
- Raised fasting blood glucose (FBG) ≥100 mg/dL (5.6 mmol/L), or previously diagnosed type 2 diabetes. If above 5.6 mmol/L or 100 mg/dL.

Underlying mechanism of the development of metabolic syndrome in schizophrenic patient is still hazy, but studies have proven that there are multiple contributing factors for development of metabolic syndrome in schizophrenic patients. For e.g. unhealthy dietary habits, physical inactivity [7], substance abuse [8], poor education, poverty [9] antipsychotic therapy, separation of mental and physical health causing lack of holistic approach by psychiatrist as well as physician [10].

Though multiple studies have shown the increased prevalence of metabolic syndrome associated with the exposure of antipsychotic drugs but there is very scanty data showing the metabolic syndrome in drug naïve schizophrenic patients. Thus, we conducted this study to know the presence of metabolic syndrome in drug naïve schizophrenic patients.

1.2. Materials and methods

Objective: Objective of our study was to assess the determinant of metabolic syndrome in northern India region in the vicinity of our institute.

Study design: It was a cross sectional study, that was conducted in patients with diagnosis of schizophrenia as per the International Classification of Disease - 10 (ICD - 10) criteria who were admitted in psychiatry ward of MM Institute of Medical Sciences and Research, Mullana (Ambala, India) (MMIMSR).

Institutional ethical committee approval was obtained. A written informed consent was obtained from the participants who consented to take part in the study.

Sample size: A total of 30 indoor patients who were diagnosed having schizophrenia as per ICD 10.

Instruments and tools used:

1. ICD 10 diagnostic criteria for establishing the schizophrenia
2. Socio-demographic Performa for anthropometric measurement used in our department
3. IDF criteria for establishing metabolic syndrome
4. Weight, waist circumference and blood pressure assessment was done by using standard protocol
5. Fasting Blood Glucose (FBG), Triglyceride (TGs), High Density Lipoprotein (HDL), total cholesterol, Low Density Lipoprotein (LDL) cholesterol were measured by taking venous sample under aseptic conditions.

1.3. Inclusion criteria

- Patients who were admitted in psychiatry ward of MMIMSR.
- Patients who gave voluntary written consent for the study
- Patients in the age group of 25–80 years (both males and females).
- Patients with a diagnosis of schizophrenia as per ICD 10 criteria.
- *Drug naïve patients* i.e. patients who either never received any antipsychotics for more than 2 weeks and not so in last three months; which was ascertained by information gathered from patients and their caregiver and wherever available, the review of treatment records.

Table 1
Socio-demographic Profile, Blood Pressure, Metabolic Parameters of the study sample.

				ICD -10				Total	Chi-square value	P-value
				Paranoid	Catatonia	Undifferentiated	Unspecified			
Socio-demographic Profile	Sex		Female	13	2	2	2	19	0.359	0.949
			Male	7	1	2	1	11		
	Locality		Rural	19	3	4	3	29	0.517	0.915
			Urban	1	0	0	0	1		
	Occupation		Unskilled	13	1	4	2	20	4.675	0.586
			Semiskilled	3	1	0	1	5		
			Skilled	4	1	0	0	5		
	Education		Uneducated	2	1	1	0	4	10.788	0.547
			Primary	6	1	0	2	9		
			Secondary	5	1	1	0	7		
			Higher	4	0	0	1	5		
			Graduate	3	0	2	0	5		
	Marital Status		Married	9	1	1	2	13	1.357	0.716
			Single	11	2	3	1	17		
	Religion		Hindu	16	3	1	2	22	16.776	0.010
			Muslim	4	0	3	0	7		
			Sikh	0	0	0	1	1		
Blood Pressure	SBP		≤130 mmHg	16	3	3	3	25	1.56	0.668
			≥130 mmHg	4	0	1	0	5		
	DBP		≤85 mmHg	17	3	3	3	26	1.442	0.696
			≥85 mmHg	3	0	1	0	4		
Metabolic Parameters	FBS		≤100 mg/dl	17	3	4	3	27	1.667	0.644
			≥100 mg/dl	3	0	0	0	3		
	TG		≤150 mg/dl	13	2	4	3	22	3.324	0.344
			≥150 mg/dl	7	1	0	0	8		
	HDL		≥50 mg/dl	2	2	2	1	7	6.894	0.075
			≤50 mg/dl	18	1	2	2	23		
	Waist Circumference	Female	≥80 cm	8	1	3	1	13	0.803	0.849
			≤80 cm	3	1	1	1	6		
		Male	≥90 cm	5	1	0	1	7	1.397	0.497
			≤90 cm	4	0	0	0	4		

Please cite this article in press as: S. Anjum, et al., Metabolic syndrome in drug naïve schizophrenic patients, Diab Met Syndr: Clin Res Rev (2017), https://doi.org/10.1016/j.dsx.2017.11.006