Prevalence's of Dyslipidemia in medication of Psychotic Disorders.

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Abstract

Objective: The present study aimed to investigate the dyslipidemic effects of risperidone, clozapine, and haloperidol while teaching first-episode schizophrenia.

Place and Time: The sample (n=340) was selected from the outpatient department of the Sir Cows Jee Jehangir Institute of Psychiatry Hyderabad (CJIP). The selected patients were randomly grouped (100 each) to receive risperidone, clozapine and haloperidol and 40 were given placebo (multivitamin). This study was single blinded. The duration of study was 3 months (April to June 2011)

Results: The Mean, Standard Deviation and SEM values of risperidone was in total cholesterol level 207.2 ± 44.90 , 4.49, in HDL level 40.1 ± 6.60, .660, in LDL level 154.3 ± 28.64, 2.86,. and in triglyceride level 179.7 ± 37.07 , 3.70, Chi-squire test was used to compare the total cholesterol of control group and cholesterol level after risperidone 0.001 P value was<.005 highly significant

Conclusion: Patients with severe mental illnesses are at increased metabolic risk. Psychiatric medications can increase metabolic risk. Treatment decisions have implications for metabolic risk and outcomes.

Key Words: Psychosis, Risperidone, Clozapine, Haloperidol, Placebo, Hyperlipidemia.

Introduction: Antipsychotic medications are an important component in the medical management of many psychotic conditions. With the introduction of the second -generation antipsychotics over the last decade, the use of these medications has soared. Although the SGAs have many notable benefits compared with their earlier counterparts, their use has been associated with reports of dramatic weight gain, diabetes (even acute metabolic decompensation, e.g.,
diabetic ketoacidosis, and an atherogenic lipid profile (increased LDL cholesterol and triglyceride levels and decreased HDL cholesterol).[1]

There is accumulating empirical evidence and growing clinical concern that some of the newer antipsychotic medications may increase the risk of hyperlipidemia. Case reports have linked treatment with clozapine and olanzapine to hyperlipidemia that disappears when antipsychotic medications are discontinued. Medical record reviews
further support a connection between clozapine and olanzapine and the increased risk of hypertriglyceridemia. A small prospective observational study demonstrated that most patients
developed hyperlipidemia during the first few months of olanzapine treatment. [2]

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There is a high prevalence of the metabolic syndrome in patients with schizophrenic patients receiving second-generation antipsychotic agents. Increasing awareness of this fact among psychiatrists will help to prevent, detect, and treat this condition that is associated with considerable morbidity and mortality. [3]

Glucose and lipid metabolism dysfunction is a significant side effect associated with antipsychotics. Although there
are many studies about the linkages between drugs and metabolic dysfunction, most of these studies have compared the effects of two antipsychotics on only one metabolic measure: either glucose or lipid metabolism. [4]

The risk of hyperlipidemia among people with schizophrenia exposed to new antipsychotics (clozapine, olanzapine, quetiapine, risperidone) compared with those exposed to older generation antipsychotics the greater[5].

Clozapine and olanzapine, for example, appear to be associated with hyperlipidemia, which may be associated with changes in body weight. Other, newer antipsychotic agents may exhibit less liability for weight gain and the development of dyslipidemia[6].

This effect is higher in younger age[7]. An increased BMI, male gender and cigarette smoking and also major predictors of a decreased HDL-cholesterol level. [8].

In the malayysias study only non-Malays were found to have significant dyslipidaemia [9].

Material and Methods:

The sample (n=340) was selected from the outpatient department of the Sir Cows J Jehangir Institute of Psy-

chiatry Hyderabad (CJIP), using the criteria described below.

Inclusion criteria

1. The age of the subjects (males and females) was in the range of 20-60 years.
2. All subjects had paranoid schizophrenia.
3. The subjects had not have received any antipsychotic drug.

Informed consent was taken from the patient and/or a family member.

Exclusion criteria:

Patients with the following were excluded:

1. Co-morbid substance dependence, mood disorder, personality disorders
2. Evidence of organic conditions such as dementia and epilepsy.
3. Patients of other illness

The selected patients were admitted and randomly grouped (100 each) to receive risperidone, clozapine and haloperidol and 40 were put on placebo (multivitamin). Three months from April 2011 to June 2011 was duration of the study. At baseline, along with a complete psychiatric history and physical examination, assessment in both the groups was done using the Positive and Negative Syndrome Scale (PANSS) and brief psychiatric rating scale for efficacy, and lipid profile.

The patients were assessed at weekly intervals for 6 weeks using lipid profile, which was the key measure of antipsychotic safety.

The patients were also assessed every week till the end -point using the lipid profile. While no other antipsychotic treatment was allowed.

Limitations-Currently:

knowledge of the cost-effectiveness of different interventions to lower metabolic risk is limited. Questions remain concerning how to implement clinical strategies that would improve quality and disparities of care in mental illness. Future studies are needed to identify the mechanisms that allow medications to cause adiposity and changes in insulin sensitivity

Results:

Table-1: Base line demography and base line score of participants in the study.

	Total No of Pts	Contl Group	Pts on Risp	Pts on Clozpn	Pts on halo	Age 30 -50	Age 50-onward	TC	THDL	TLDL
Mean ± StD	170.5 ± 98.294	20.50 ±11.690	50.50 ± 29.011	50.50 ± 29.011	50.50 ± 29.011	41.4 ± 5.132	59.4 ± 4.661	185.8 ± 9.721	42.2 ± 4.899	140.9 ± 6.658
SEM	5.331	1.848	2.901	2.901	2.901	.637	.788	.972	.490	.666
Male		**Percentage**		**Female**		**Percentage**				
178		52.4		172		47.6				

Pts-Patients, Contrl-Conrol, Risp-Risperidone, Clozp-Clozapine, Halo-Haloperidol,TC-Total Cholestrol,THDL-Total High density lipoproteins,TLDL-Total Low density lipoprotein,Ttrig-Total Triglyceride

Figure-1A:

Base line demography and base line score of participants in the study.

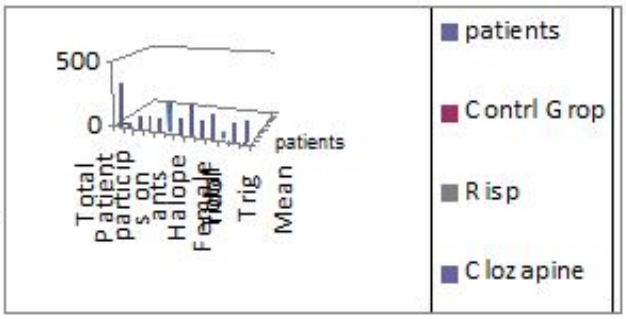
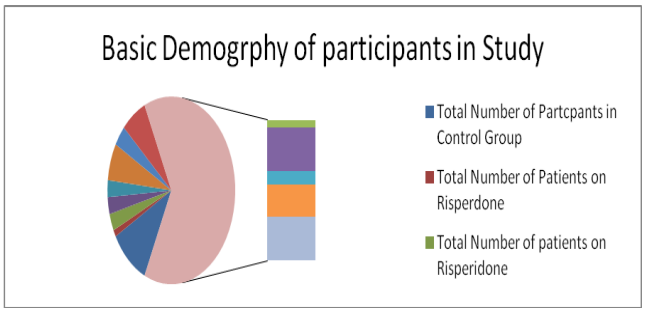


Figure-1B

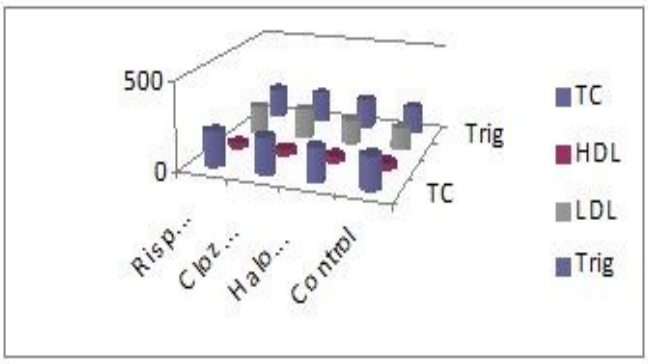


In table and figure no-1 showed basic score and demography of participants in the study, the biostatic values shoed that the Mean, standard deviaton and SEM of total participants is 170.5 ± 98.294,5.331, control group 20.50 ± 11.690 1.848, patients on risperidone 50.50 ± 29.011, 2.901,patients on clozapine 50.50 ± 29.011,2.901 ,patients on haloperidol 50.50 ± 29.011, 2.901, age of participants between 30-50 years 41.4 ± 5.132, .637, age of participants between 50-onwards

59.4 ± 4.661,.788, total cholestrol level before treatment of psychosis 185.8 ± 9.721, .972, , total HDL level before treatment of psychosis 42.2 ± 4.899,.490, total LDL level before treatment of psychosis 140.9 ± 6.658, .666 total Triglyceride level before treatment of psychosis 162.5 ± 14.43, 1.443. Male participants 52.4%, Female participants 47.6%.

Drug	TC		HDL		LDL		Trig		P-Value
	Mean# St.D	SEM	Mean# St.D	SEM	Mean# St.D	SEM	Mean# St.D	SEM	
Risperidone	207.2 #44.90	4.49	40.1# 6.60	.660	154.3#28.64	2.86	179.7#37.07	3.70	.005#
Clozapine	213.5#59.15	5.91	39.4#7.72	.773	171.4#62.17	6.21	182.9#43.71	4.37	.003#
Haloperidol	193.5#23.2	2.32	41.5# 5.65	.566	154.8 #44.4	4.44	172.2 #27.92	2.79	.001#
Control Group	185.9#9.775	.973	42.2#4.889	.486		.659	162.33 #14.467	1.439	.909

Figure-02



change scores in baseline with treatment of psychosis patients in the study. The Mean, Standard Deviation and SEM of quatitive values of risperidone was in total cholesterol level 207.2 ± 44.90 , 4.49, in HDL level 40.1 ± 6.60, .660, in LDL level 154.3 ± 28.64, 2.86,. and in triglyceride level 179.7 ± 37.07 , 3.70, Chi-squire test os association was used to compare the total cholesterol of control group and cholesterol level after risperidone used in the treatment of psychosis P <.005 highly significant. The Mean, Standard Deviation and SEM of quatitive values of clozapine was in total cholesterol level 213.5 ±59.15 , 5.91, , in HDL level 39.4 ±7.72, .773, in LDL level171.4 ± 62.17, 6.21, and in triglyceride level 182.9 ± 43.71 , 4.37,.Chi-squire test of association was used to compare the total cholesterol of control group and cholesterol level after clozapine used in the treatment of psychosis P <.003 highly significant. The Mean, Standard Deviation nd SEM of quantitive values of haloperidol was in total cholesterol level, 193.5 ± 23.2, 2.32, in HDL level 41.5 ± 5.65, .566, in LDL level 154.8 ± 44.4, 4.44, and in triglyceride level 172.2 ± 27.92, 2.79, Chi-squire test of association was used to compare the total cholesterol of control group and cholesterol level after haloperidol used in the treatment of psychosis P <.003 highly significant. The Mean, Standard Deviation and SEM of quantitive values of control group was in total cholesterol level, 185.94 ± 9.775 , .973, in HDL level 42.24 ± 4.889, .486, in LDL level 140.89 ± 6.626, .659, and in triglyceride level 162.33 ± 14.467, 1.439. Chi-squire test of association was used to compare the total cholesterol of all participants and cholesterol level of control group in the treatment of psychosis P >.909 non significant .

Discussion:

Present study is consistent with the study of lambert et al (2005) in which olanzapine (OR = 1.20, 95% CI 1.08 -1.33) was associated with increased risk of developing hyperlipidemia compared with older antipsychotic medications. Exposure to clozapine (OR = 1.16, 95% CI 0.99-1.37), risperidone (OR = 1.00, 95% CI 0.90-1.12), and quetiapine (OR = 1.01, 95% CI 0.78-1.32) was not. Hypothesis tests comparing the 4 atypicals to one another revealed that the odds ratio for olanzapine was greater than that for risperidone (P = 0.002). Other than clozapine's odds ratio being significant at 24 weeks (OR = 1.22, 95% CI 1.03-1.45).[10] The change scores in baseline with treatment of psychosis patients in the study. The Mean, Standard Deviation and SEM of quatitive values of risperidone was in total cholesterol level 207.2 ± 44.90 , 4.49, in HDL level 40.1 ± 6.60, .660, in LDL level 154.3 ± 28.64, 2.86,. and in triglyceride level 179.7 ± 37.07 , 3.70, Chi-squire test of association was used to compare the total cholesterol of control group and cholesterol level after risperidone used in the treatment of psychosis P <.005 highly significant.

Lipid abnormalities have been shown to occur in patients treated with clozapine, olanzapine, quetiapine, and risperidone.[11] Clozapine and olanzapine, which produce the greatest weight gain, are associated with the greatest increases in total cholesterol, LDL cholesterol, and triglycerides and with decreased HDL cholesterol.[12]

Our study is matched with the study of Pallava A et al (2012) Subjects on treatment with antipsychotics had significantly higher mean weight, body mass index,

waist circumference, calorie intake, triglycerides, eyry-low-density lipoproteins, fasting blood sugar and positive family history of diabetes mellitus compared with the antipsychotic-free/naive ones. Subjects on antipsychotics also had significantly higher prevalence of metabolic syndrome. A positive association of metabolic syndrome was observed with age, being married, higher education, executive jobs and ICD-10 diagnosis of schizophrenia, duration of illness, family history of diabetes mellitus and family history of hypertension.[13] The Mean, Standard Deviation and SEM of quantities values of clozapine was in total cholesterol level 213.5 ±59.15, 5.91, , in HDL level 39.4 ±7.72, .773, in LDL level171.4 ± 62.17, 6.21, and in triglyceride level 182.9 ±43.71 , 4.37,.Chi-squire test of association was used to compare the total cholesterol of control group and cholesterol level after clozapine used in the treatment of psychosis P <.003 highly significant.

People with schizophrenia have higher rates of medical illness and mortality than the general population. Cardiovascular disease is a major contributor to premature death in patients with schizophrenia. There has been an increase literature discussing the high prevalence of dyslipidemia, which is one of risk factors for cardiovascular disease, induced by second generation antipsychotic agents.[14] It has been proved in our study that antipsychotic drugs cause hyperlipidemia. The Mean, Standard Deviation nd SEM of quantitive values of haloperidol was in total cholesterol level, 193.5 ± 23.2, 2.32, in HDL level 41.5 ± 5.65, .566, in LDL level 154.8 ± 44.4, 4.44, and in triglyceride level 172.2 ± 27.92, 2.79, Chi-squire test of association was used to compare the total cholesterol of control group and cholesterol level after haloperidole used in the treatment of psychosis P <.003 highly significant.

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