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COMPARISON BETWEEN HALOPERIDOL AND RISPERIDONE IN DEVELOPMENT OF METABOLIC SYNDROME IN INDIAN PATIENTS

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ABSTRACT

Introduction: It is well known that anti-psychotics are associated with many side effects. One of the significant adverse drug reactions among these is weight gain and development of metabolic syndrome. In this study, we compared the most widely used drugs Haloperidol and Risperidone for development of metabolic syndrome in treatment naïve patients with one episode of Schizophrenia. **Methods:** We took a total of 45 patients who were diagnosed to have Schizophrenia. All these patients never took any anti-psychotic in their live, nor did they take any other medicine for CNS/Psychiatry disorder. Among these 45 patients, 16 patients were put on Haloperidol and 29 patients were prescribed Risperidone. Patients with endocrine disturbances, any systemic disorders, etc. were removed from the study. The baseline characteristics of all the patients were properly studied and recorded. The characteristics were recorded again after 6 months and comparison was done by statistical methods. **Results:** PANSS score showed a decrease in both groups, systolic blood pressure showed an increase with Haloperidol and an initial decrease with risperidone while diastolic blood pressure increased with haloperidol. Weight gain, increase in waist circumference, rise in triglyceride levels and fall in HDL cholesterol were equally observed in both groups. Increase in plasma glucose was seen more with risperidone (93.1%). 18.86% (n = 10) developed metabolic syndrome at the end of 6months with no difference in emergence between both groups. **Conclusion:** Risperidone is considered equivalent to Haloperidol in efficacy but it is associated with increase in the components of metabolic syndrome.

KEYWORDS: It is well known Risperidone metabolic syndrome.

INTRODUCTION

Schizophrenia has multifactorial aetiology. The introduction of Chlorpromazine started a revolution in the treatment of Schizophrenia and this lead to dopaminergic hypothesis in Schizophrenia. Chlorpromazine, Haloperidol, dopamine antagonists were the typical or the first generation antipsychotics. These medicines were associated with many side effects like tardive dyskinesia. More research lead to development of dopamine-serotonin antagonists- second generation anti-psychotics or atypical anti-psychotics.[1] Second generation anti-psychotics like Clozapine was associated with lesser extra-pyramidal symptoms But with these anti-psychotics, there was an increase in metabolic dysregulations like weight gain, hypertension, and increased cardiac and cerebrovascular complications.[2] Weight gain is a common side effect in both first and second generation anti-psychotics.[3] This was more evident in subcutaneous and intra-abdominal fat deposition. Increase in insulin level is also postulated to increase in adiposity.[4] Atypical anti-psychotics are more prone to develop adverse metabolic outcomes especially dyslipidaemia.[5] In this study, we tried to compare the development of metabolic syndrome in patients who are drug naive to schizophrenia. This can help in further deciding the choice of anti-psychotic for the management of Schizophrenia.

METHODS

This is a prospective study that was being conducted in the outpatient department. Patients who were diagnosed to have Schizophrenia as per DSM IV criteria between

the age of 18 and 50 were taken in the study. Patients with other comorbid diseases like other psychiatric illnesses, substance abuse, hypertension, obesity, dyslipidaemia were excluded from the study. Patients were divided into two groups. The first group received Haloperidol and the other group received Risperidone as the treatment drug. Complete psychiatric history, past history etc was recorded in the first visit. Baseline measurements of all the anthropometric measures were obtained. To assess for psychopathology of the patient, DSM IV diagnostic criteria were used for Schizophrenia were used. Positive and Negative Symptoms Scale and Simpson Angus rating scale were also used. American Heart Association criteria for metabolic syndrome were used for metabolic derangements were used. Fasting plasma glucose levels, blood pressure readings, average of 3 readings, lipid profile after 12 hrs fasting, waist hip ratio, body mass index were measured and the same parameters were also measured after 6 months. These were compared. All the parameters were compared statistically. P value of <0.05 was taken to be statistically significance.

RESULTS

The mean age in the Haloperidol group was 28.78±4.84years and in the Risperidone group was 29.74±6.13years. In the haloperidol group, there were 7/16(43.75%) females and 12/29(41.37%) in the Risperidone group. 12/16 (75%) patients were in low socio-economic group in the Haloperidol group and 23/29(79.31%) in the Risperidone group. 7/16(43.75%) [Patients had a past history of Schizophrenia in the Haloperidol group and 10/29(34.48%) in the Risperidone group. PANSS score was 117.45±26.87 and 118.45±27.94 in the Haloperidol group and the Risperidone group respectively. Mean weight was 55.48±7.42 and 58.47±8.52 in the Haloperidol group and Risperidone group respectively. Waist circumference was 82.64±4.57 and 84.78±6.34 in the Haloperidol and the Risperidone group. BMI was 22.47±4.07 and 22.67±3.75 in the Haloperidol group and the Risperidone group. HDL cholesterol levels were 50.08±4.37 and 48.48±4.71 in the Haloperidol and the Risperidone group. Triglycerides levels were 134.12±10.86 and 132.45±12.15 in the Haloperidol and the Risperidone group respectively. In the Haloperidol group, the systolic blood pressure was 111.75±12.38 and diastolic blood pressure was 71.81±7.88. In the Risperidone group, the systolic blood pressure was 111±11.7 and the diastolic blood pressure was 70.71±10.36. Fasting blood pressure was 70.71±10.36 and 89.83±6.35 in the Haloperidol and the Risperidone group respectively. Post prandial blood glucose levels were 125.75±10.11 and 122.69±10.28 in the Haloperidol group and the Risperidone group.

PANSS score showed a decrease in both groups, systolic blood pressure showed an increase with Haloperidol and an initial decrease with risperidone while diastolic blood pressure increased with haloperidol. Weight gain, increase in waist circumference and hip circumference, rise in triglyceride levels and fall in HDL cholesterol were equally observed in both groups. Increase in plasma glucose was seen more with risperidone. 18.86% (n = 10) developed metabolic syndrome at the end of 6months with no difference in emergence between both groups.

Table 1: Baseline characteristics of the study population.

Parameter	Haloperidol group	Risperidone group
Mean age	28.78±4.84	29.74±6.13
Females	7/16(43.75%)	12/29(41.37%)
Lower socioeconomic status	12/16 (75%)	23/29(79.31%)
Family H/o Schizophrenia	7/16(43.75%)	10/29(34.48%)
PANSS score	117.45±26.87	118.45±27.94
Mean weight	55.48±7.42	58.47±8.52
Waist circumference	82.64±4.57	84.78±6.34
Body Mass Index	22.47±4.07	22.67±3.75
HDL Cholesterol	50.08±4.37	48.48±4.71
Triglyceride level	134.12±10.86	132.45±12.15
Systolic blood pressure	111.75±12.38	111±11.7
Diastolic blood pressure	71.81±7.88	70.71±10.36
Fasting Plasma glucose	90.92±5.49	89.83±6.35
Post prandial plasma glucose	125.75±10.11	122.69±10.28

Table 2: Characteristics in Haloperidol and Risperidone group.

	Haloperidol group	Risperidone group	P value
PANSS at 0 month	117.45±26.87	118.45±27.94	0.002
PANSS at 6 months	93.53±11.7	90.78±9.7	
Systolic blood pressure at 0 month	111.75±12.38	111±11.7	0.003
Systolic blood pressure at 6 month	134.96±14.36	128.18±12.66	
Diastolic blood pressure at 0 month	71.81±7.88	70.71±10.36	0.001
Diastolic blood pressure at 6 month	92.47±5.86	93.78±6.98	
Weight at 0 month	55.48±7.42	58.47±8.52	0.005
Weight at 6 months	62.47±8.36	64.71±7.38	
Waist circumference at 0 month	82.64±4.57	84.78±6.34	0.006
Waist circumference at 6 month	86.41±7.88	88.14±9.88	
HDL cholesterol at 0 month	50.08±4.37	48.48±4.71	0.005
HDL cholesterol at 6 months	42.15±9.88	43.19±7.45	
Triglycerides level at 0 month	134.12±10.86	132.45±12.15	0.005
Triglycerides level at 6 month	149.47±12.47	148.47±13.57	

DISCUSSION

Schizophrenia is a risk factor for the development of metabolic syndrome. In vulnerable individuals, there is a two-fold increase in the increase of the risk level. Treatment with anti-psychotics compounds this risk of the development of the metabolic syndrome. Even in the first generation anti-psychotics, there is a differential liability with the phenothiazine group drugs like Chlorpromazine showing more risk of metabolic syndrome than Haloperidol. In the second generation anti-psychotics Risperidone cause moderate derangements while Clozapine and Olanzapine cause more significant derangements. Ziprasidone and Aripiprazole has doubtful derangements.[6]

In our study, the limitation was a smaller sample size and limited follow up. This may have prevented observing changes in the occurring at a later stage. Dietary pattern and physical activity were not observed which can mask the efficacy.

CONCLUSION

Risperidone is considered equivalent to Haloperidol in efficacy but it is associated with increase in the components of metabolic syndrome.

REFERENCES

1. Margolese HC, Chouinard G, kolivakis TT, Beauclair L, Miller R, Annable L. Tardive dyskinesia in the era of typical and atypical antipsychotics. part 2: incidence and management strategies in patients with schizophrenia. Canadian J Psychiatry, 2005; 50(11): 703-14.
2. Jin H, Meyer JM, Jeste DV. Atypical antipsychotics and glucose dysregulation: A systematic review. Schizophrenia Res., 2004; 71(2-3): 195-212.
3. Allison DB, Mentore JL, Heo M, Chandler LP, Cappelleri JC, Infante MC, et al. Antipsychotic-induced weight gain: a comprehensive research synthesis. Am J Psychiatry, 1999; 156(111): 1686-96.
4. Ebenbichler CF, Laimer M, Eder U, Mangweth B, Weiss E, Hofer A, et al. Olanzapine induces insulin resistance: results from a prospective study. J Clin Psychiatry, 2003; 64(12): 1436-9.
5. Meyer JM, Koro CE. The effects of antipsychotic therapy on serum lipids: a comprehensive review. Schizo Res., 2004; 70(1): 1-17.
6. Maayan L, Correll CU. Management of antipsychotic-related weight gain. Expert review of neurotherapeutics, 2010; 10(7): 1175-1200.