ORIGINAL ARTICLE

Comparative Study of Anti Psychotic Drugs regarding Safety Profile in patients with Diabetes and Obesity

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ABSTRACT

Background: The use of antipsychotic medicines (quetiapine and olanzepine) has increased during recent years. Their adverse effects can interfere with quality of life and subjective wellbeing of the diabetic and obese patients. This study was performed to analyse the metabolic side effects of these antipsychotic medicines among diabetic and obese patients.
Aim*:* To analyse the metabolic side effects of these antipsychotic medicines (quetiapine and olanzepine) among diabetic and obese patients.
Sample size: Two hundred (200) patients
Study Design: It was a **c**omparative & cross sectional study.
Place of study: Outdoor department of medical units and psychiatry departments of KEMU/ Mayo Hospital, Lahore, services institute of medical and health sciences Lahore.
Duration of Study: From April 2016 to Dec2017.
Data Collection Procedure: Consent was obtained from patients in written. Patient's weight, height, fasting blood glucose etc were measured at baseline. 100 patients were given Olanzapine and100 patients were treated with Quetiapine for 12 weeks. Investigations were then repeated at 8 & 12 weeks.
Results: Patients mean age was 33.55±8.22 years in olanzapine group and 32.35±8.28 years in Quetiapine group. There were 70 males (70%) in olanzapine group, while 30 patients (30%) were females. In quetiapine group, males were 60 (60%) whereas 40(40%) were female patients. Significant changes in body mass index and blood glucose level were observed in olanzapine group as compared to quetiapine group.`
Conclusion: Quetiapine was noted much safer than olanzapine in the management of pshychotic patients with diabetes and obesity.
Keywords: Olanzapine, quetiapine, body mass index, blood glucose levels

INTRODUCTION

The prevalence of diabetes has much increased worldwide in recent years. It has been noticed that incidence of worsening of diabetes and obesity has raised among patients treated with second generation antipsychotics who are already diabetic and obese[1].

Therefore adverse effects of these drugs should be regularly monitored e.g.,, weight gain and blood glucose levels[2,3].

Different studies were conducted in Pakistan and they have shown that olanzapine is one of the most widely prescribed antipsychotic medicine in psychotic patients of our population with well established efficacy.[4,5] Due to lack of research on the side effects relating to metabolic derangements like blood glucose and increased (body mass index) BMI in our population, therefore the need to research these specific side effects of antipsychotics in Pakistani population is much needed and warranted.[6,7,8]
The basic purpose of study was to find out metabolic side effects of these antipsychotic drugs and to educate the health care professionals about the deletrious metabolic impacts of these medicines particularly in diabetic and obese patients taking these drugs.[9,10,11,12]

Operational Definitions:

Body Mass Index: defined as individual's body weight (in units of kilogram) divided by square of height (in units of meter). Normal range: 18.5-23kg/m^2. Obesity is further classified into mild, moderate and morbid depending upon the reading of observed values.

Blood Sugar Level: It is defined impaired if range is 110-126 mg/dl. Fasting blood sugar level> 126mg/dl after a overnight fast on two different occasions is defined diabetic.

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MATERIAL AND METHODS

It was a comparative & cross sectional study conducted in the OPD of medical units and psychiatry of King Edward Medical University/Mayo Hospital, Lahore, Services Institute of Medical and Sciences Lahore from April 2016 to Dec 2017. Sample size was 200 patients. ***C***onsent was obtained from patients in written. Patient's weight, height, fasting blood glucose etc were measured at baseline. 100 patients were given Olanzapine and100 patients were treated with Quetiapine for 12 weeks. Investigations were then repeated at 8 & 12 weeks. Sampling Technique: It was non-probability purposive sampling technique.

Inclusion Criteria:

Patients who were known case of psychotic disorder like Schizophrenia etc between the age of 18-70 years
Patients not taking these medicines already
Patients with Diabetes Mellitus or fasting blood sugar < 126mg/dl taking medication.
Patients with obesity or low BMI due to medicines use for obesity

Exclusion Criteria

History of all types of epilepsy or fit

History of recent drug abuse e.g.,, heroin intake, cocaine use, alcohol abuse etc.
Uncontolled diabetes mellitus.
Morbid obesity.
Comorbid illness like severe cardiac failure, CkD, CLD etc

SPSS version 19 was used to analyse the data. Qualitative variables like gender etc were presented as frequencies. Quantitative variables like age etc were presented as Mean and SD. Side effects were analysed by Chi-square test. p value < 0.05 was considered significant statistically.

RESULTS

Table 1:Comparative values of fasting blood sugar in both groups

Fasting blood sugar		Drug		Total	p-value
		Olanzapine	Quetiapine		
Baseline	>126mg/dl	30 (30%)	30 (30%)	60 (30%)	0.543
	<126mg/dl	70 (70%)	70 (70%)	140 (70%)	
	Total	100 (100%)	100 (100%)	200 (100%)	
Week 8	>126mg/dl	35 (35%)	31 (31%)	66 (32%)	0.322
	<126mg/dl	65 (65%)	69 (69.2%)	134 (68%)	
	Total	100 (100%)	100 (100%)	200 (100%)	
Week 12	>126mg/dl	48 (48%)	35 (35%)	83 (45.8%)	0.003
	<126mg/dl	52 (52%)	65 (65%)	117 (65%)	
	Total	100 (100%)	100 (100%)	200 (100%)	

Table 2:Comparative values of(body mass index) BMI in both groups

BMI		Drug name		Total	p-value
		Olanzapine	Quetiapine		
Baseline	>23kg/m^2	29 (29%)	29 (29%)	58 (29%)	0.657
	18-23kg/m^2	71 (71%)	71 (71%)	142 (71%)	
	Total	100 (100%)	100 (100%)	200 (100%)	
Week 8	>23kg/m^2	31 (31%)	30 (30%)	61 (30.6%)	0.011
	18-23kg/m^2	69 (69%)	70 (70%)	139 (69.4%)	
	Total	100 (100%)	68 (100%)	136 (100%)	
Week 12	>23kg/m^2	45 (45%)	35 (35%)	80 (40%)	0.oo4
	18-23kg/m^2	55 (55%)	65 (65%)	120 (60%)	
	Total	100 (100%)	100 (100%)	200 (100%)	

DISCUSSION

A study was conducted on 120 patients and out of these, 12.67% patients had developed metabolic side effects during antipsychotic drug therapy[7]. Similarly another study of 270 patients showed that 48.6% patients developed metabolic side effects of these antipsychotic medicines[8]. A study of 1967 patients conducted and it concluded that 8% of patients had diabetes and 9% developed impaired lipid profile[9]. A study of African-American schizophrenia patients showed remarkable weight gain on antipsychotics as compared to European population patients[11]. Also a study was conducted in America and it resulted that environmental factors also play a role in the effect of antipsychotic induced weight gain[12.].

CONCLUSION

Quetiapine was noted much safer than olanzapine in the management of pshychotic patients with diabetes and obesity.

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