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Case Study

Metabolic Syndrome Risk Associated with Atypical Antipsychotic Medication: A Case Report

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Abstract

People with schizophrenia are vulnerable group suffer from metabolic syndrome events. Atypical antipsychotics associated with weight gain, insulin resistance, and profile lipid abnormalities. The present case was 32-year-old man schizophrenia outpatient had experienced metabolic syndrome side effects. Metabolic syndrome characterized by central obesity, hyperglicemia, hypertriglyceridemia, low High Density Lipoprotein (HDL) cholesterol level, and several months feel an increase in appetite. Metabolic syndrome events might be associated with long-term atypical antipsychotics consuming and tobacco use. As pharmacists, We advised the patient to referral primary healthcare service for managing metabolic syndrome side effects. Pharmacists intervention through education and metabolic syndrome screening program have positive impacts on lifestyle modification such as decreasing number of cigarette consumption and caffeine intake, also increasing physical activity.

Keywords: Antipsychotics, Atypical antipsychotic, Metabolic syndrome, Pharmacist, Schizophrenia.

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INTRODUCTION

Schizophrenia is one of chronic mental disorder that cause to the global burden of disease[1]. The majority deaths among people suffering from schizophrenia are associated with physical diseases[2]. Some studies reported that patients with schizophrenia have 20% less life expectancy than general population, the main cause due to coronary heart disease and reported to have 2-3 fold risk of mortality due to cardiovascular events[3,4]. Metabolic syndrome is one of caused cardiovascular disease[1].

People suffering from schizophrenia have poorer health compared to general population. These populations associated with higher rate of over weight, metabolic abnormalities, tobacco use, alcohol use, poor of diet, and lack of physical activity[5]. Furthermore, metabolic syndrome events increased in patients with schizophrenia treated with atypical antipsychotics[6]. Atypical antipsychotics lead weight gain, increase insulin resistance, and lipid abnormalities[6]. Some study, highlight that prevalence of metabolic syndrome in schizophrenia patients treated with atypical antipsychotics (20.40%) higher than in schizophrenia patients treated with typical antipsychotics (9.18%)[7].

CASE STUDY

A 32-year-old man schizophrenia outpatient with stable condition has diagnosed residual schizophrenia since 15 years ago (at the age of 17 year old). Patient was given antipsychotic medications since 15 years ago. The current medications were clozapine 25 mg once daily, Quetiapine Extended Release (XR) 300 mg once daily, and Depakote Extended Release (XR) 250 mg twice daily. During the treatment process, patient routine take medications and has good adherence score. Patient had no past history of hypertension, diabetes mellitus, and dislipidemia. Patient had family history of hypertension, patient had no family history of diabetes mellitus and dislipidemia. Several months feel an increase in appetite.

Objective and Clinical data:

Table 1: Objective and Clinical Data

	04-November-2020*	04-December-2020**
Profile of medication	Clozapine 25 mg once daily Quetiapine XR 300 mg once daily Depakote 250 mg XR twice daily	Clozapine 25 mg once daily Quetiapine XR 400 mg once daily Depakote 250 mg XR twice daily
Laboratory testing***	Blood Glucose 483 mg/dL (normal value: <200 mg/dL) Total Cholesterol 181 mg/dL (normal value: <200 mg/dL) Triglyceride 566 mg/dL (normal value: <150 mg/dL) HDL 28 mg/dL (normal value: >40 mg/dL)	
Blood Pressure	153/93 mmHg	123/79 mmHg
Waist circumstance	94 CM	93CM
Weight	76 Kg	75 Kg
Height	161 CM	161 CM
Body Mass Index (BMI)	29.34	28.95
Framingham Risk Score (FRS)	6 (10-years cardiovascular disease risk: 2%)	

*The data were taken before Education and MEtabolic SYndrome Screening (EMESYS) session by pharmacists.

**The data were taken after EMESYS session by pharmacists.

***Random blood sampling

Subjective and social condition data:

Table 2: Subjective and Social Condition Data

	04-November-2020*	04-December-2020**
Education level	Senior high school	
Marital status	Divorce	
Employment	Full time	
Housing condition	Living alone	
Family mental disorder history	Young brother	
Alcohol intake	None	
Caffeine intake	3 cups/day	1 cup/day
Smoking	12 cigarette/day	6 cigarette/day
Physical activity	Occasionally playing football	Farming
Medication Adherence Rating Scale Score	9	9
Subjective Well-being under Neuroleptic Score	107	107

*The data were taken before Education and MEtabolic SYndrome Screening (EMESYS) session by pharmacists.

**The data were taken after EMESYS session by pharmacists.

PHARMACISTS ASSESSMENT

Based on data collected, the patient has good adherence to medication (MARS score ≥8) and adequate quality of life (SWN score ≥ 80). Based on FRS score, patient has low 10-year cardiovascular disease risk. In other hand, the patient has suffered from metabolic syndrome indicated by central obesity (waist circumstance ≥90 CM), low High Density Lipoprotein cholesterol level (28 mg/dL), and hypertriglyceridemia (566 mg/dL), and hyperglicemia (483 mg/dL). Metabolic syndrome event might be associated with atypical antipsychotic medications and tobacco use.

DISCUSSION

Currently, atypical antipsychotics recommended as first choice in schizophrenia medication rather than typical antipsychotics regarding low risk extrapyramidal side effects, non-adherence, and quality of life improvement[8,9]. Nevertheless, the use of antipsychotics especially atypical antipsychotics such as clozapine, olanzapine, quetiapine, and

risperidone are associated with metabolic syndrome events[1]. Patients with schizophrenia also likely engage in unhealthy lifestyle behaviors, which increase the risk metabolic syndrome events and other physical diseases. Tobacco use is one unhealthy lifestyle behaviors that is common among schizophrenia patients. Patients with schizophrenia are twice as likely to smoke as the general population, around 61% of patients with schizophrenia smoke compared to 33% in the general population[2].

In this case study, a 32-year-old man schizophrenia outpatient had experienced metabolic syndrome side effects. Metabolic syndrome characterized by central obesity, hyperglicemia, hypertriglyceridemia, and low High Density Lipoprotein (HDL) cholesterol level. Metabolic syndrome events might be associated with long-term atypical antipsychotics consuming and tobacco use. Atypical antipsychotics characterized by full antagonism and greater affinity for the 5-HT2A receptor[10]. 5-HT2A antagonism has been implicated in antipsychotic drug-related weight again and another metabolic adverse effects. Most SGAs, especially clozpaine and olanzapine, are potent 5-HT2A antagonists[11]. As pharmacists, We advised the patient to referral primary healthcare service for managing metabolic syndrome side effects. Pharmacists intervention through education and metabolic syndrome screening program have positive impacts on lifestyle modification such as decreasing number of cigarette consumption and caffeine intake, also increasing physical activity. Several studies about the roles of pharmacist in schizophrenia management have better health outcomes for schizophrenia patients[12].

This study highlights patients with schizophrenia are vulnerable groups suffering from metabolic syndrome due to long-term use of atypical antipsychotics. In addition unhealthy lifestyle behaviors such as tobacco use increased risk of suffering from syndrome metabolic. Early metabolic syndrome screening and regular monitoring metabolic syndrome side effects are recommended. Pharmacists have strategies roles in management schizophrenia treatment by prevention, identification, and resolve drug therapeutic problems through therapeutic monitoring, non-pharmacological intervention such patient education, lifestyle modification, and early detection of side effects. These activities might be implemented by collaboration with another healthcare professional.

CONCLUSION

Metabolic syndrome events in schizophrenia are associated with long-term atypical antipsychotic use and tobacco use. Non-pharmacological intervention has positive impact on unhealthy lifestyle reduction. Pharmacists have strategic roles in preventing and screening metabolic syndrome side effects due to antipsychotic use and unhealthy lifestyle through education.

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