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RELATIONSHIP BETWEEN METABOLIC DISORDER AND ANTIPSYCHOTICS

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Metabolic syndrome is a mixture of conditions that occur together, increasing your risk of heart disease, stroke and type 2 diabetes. These conditions include increased blood pressure, high blood sugar, excess body fat around the waist, and abnormal cholesterol or triglyceride levels.[1] Some of the symptoms that can occur with metabolic disorders are lethargy, weight loss, jaundice and seizures. The symptoms expressed would vary with the type of metabolic disorder.[2] Metabolic disorders can be treatable by nutrition management, especially if detected early. It is important for dieticians to have knowledge of the genotype to, therefore, create a treatment that will be more effective for the individual.[3]

Antipsychotics, also known as neuroleptics,[4] are a class of medication primarilyuse to manage psychosis.[5] Antipsychotics are effective drugs in controlling symptoms of schizophrenia and other psychotic disorders.Antipsychotics are

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psychiatric drugs which are available on prescription, and are licensed to treat types of mental health problems whose symptoms include psychotic experiences.[6]

Antipsychotic drugs tend to fall into one of two categories: first generation (older) antipsychotics and second generation (newer) antipsychotics. Both types can potentially work well, but they differ in the kind of side effects they can cause and how severe these may be.[6] However,Second Generation Antipsychotics are also known to induce insulin resistance, hepatic steatosis, and accelerated weight gain, which can lead to morbid obesity in as short as 6 weeks.[7] The use of antipsychotics may leads to many unwanted side effects such as involuntary movement disorders, gynecomastia, impotence, weight gain and metabolic syndrome. Long-term use can produce adverse effects such as tardive dyskinesia.[8]Previous published articles have revealed that the metabolic alterations induced by Antipsychotics are partially mediated by hyperphagia due to alterations in the D1/D2, 5-HT1B, 5-HT2, and 5-HT3 signaling[9], and GABA receptor polymorphism.[10]Regarding to this, recent research have demonstrated the participation of serotonin signaling in glucose homeostasis through serotonylation of rab4 proteins[11], moreover other studies have shown that 5HT2 selective antagonism impairs insulin sensitivity. Antipsychotics also induce anomalous cellular differentiation of adipocytes[12], increase lipid accumulation in the liver tissue[13], upregulate the sterol regulatory element-binding protein[14], and inhibit of the glycogen accumulation in skeletal muscle cells.[15] Also, a literature describes differences of the metabolic problems presented in Antipsychotic-induced when compared with type 2 diabetes[16]. On this regard, there is also evidence suggesting that metabolic changes due to olanzapine are tissue specific.[17,18,19]

Persons with schizophrenia are reported to be more likely to die from cardiovascular illness than those in the general population, and are at a greater risk of developing obesity, diabetes type 2, hypertension and dyslipidemias. Antipsychotic drugs used in the treatment of schizophrenia and other psychotic illnesses can induce weight gain, with some agents having a greater propensity to do so than others. These adverse effects associated with second-generation antipsychotics are also part of the metabolic syndrome. The mechanisms by which antipsychotic medications produce weight gain may include stimulating appetite, reducing physical activity and directly impairing metabolic regulation. The pathophysiology of weight gain is mediated through monoaminergic, cholinergic and histaminergic neurotransmission.[20]Regular

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monitoring of all features of Metabolic Syndrome is the cornerstone of its early detection and management. Future research needs to focus more on genetic determinants of Metabolic Syndrome in the context of schizophrenic illness. The presence of obesity in patients with schizophrenia is two times higher than in the general population and the metabolic syndrome is reported with a prevalence of 40% in chronic schizophrenia.[21]

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