

Antipsychotic drugs-associated weight gain and its further implications on health

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ABSTRACT

Weight gain due to prescription use of antipsychotics has been associated with a diverse group of physical and mental side effects on health of patients already suffering from severe psychological diseases. It also presents as an issue for clinicians prescribing them, as it further complicates the treatment and recovery of their patients. Many solutions including lifestyle modification, alternative drugs, and treatment plans have been recommended to tackle antipsychotic drugs-associated weight gain.

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INTRODUCTION

Antipsychotics, also known as neuroleptics, are used to treat a range of mental disorders. These include short term treatment for delirium, dementia, psychotic, manic, psychotic-depressive disorders and long-term treatment for schizophrenia, schizoaffective and delusional disorders.¹ They impose a substantial threat to health over time and overshadow their array of beneficial implications. From mild sedation and dry mouth to myocarditis and agranulocytosis, antipsychotic drugs manifest long term damages, leading to mental and physical health complications.²

Most antipsychotics, including both conventional and modern drugs, result in weight gain, which is of major concern for clinicians, and the most potent of these drugs found is Clozapine.³ This side effect, which is most prevalent, has a deteriorating impact on the mental and physical health of the patient as a consequence of prolonged treatment.⁴

Effects of Antipsychotics Associated Weight Gain

Antipsychotic Associated Weight Gain (AIWG) increases the risk of metabolic syndrome, diabetes, and cardiovascular diseases.^{5,6} It also influences psychological state of a patient including mood, self-esteem, quality of life and body image.⁷ The major risk factors for AIWG include age, baseline body mass index, appetite stimulation, previous antipsychotic exposure and duration of treatment by antipsychotic drugs.⁸ These effects and numerous other co-morbidities can not only reduce life expectancy of the patient,⁹ but can also

decrease patient compliance to the psychiatric treatment.¹⁰

History of Antipsychotic Medication

In the 1950s, the first antipsychotic medication, Chlorpromazine, became available for adults which made it possible to stabilise severe mental illnesses that previously required long-term institutionalisation.¹¹ Later on, with increasing awareness of the clinical significance of antipsychotic-induced weight gain,¹² studies suggested that this adverse effect is significantly understated in chronically treated adult population revealing an acute (≤ 12 -week) body mass index increase of less than one unit (kg/m²) for Risperidone.¹³ The International Childhood Cardiovascular Cohort Consortium consisting of 5,803 participants found a 2.4-fold increased risk for adult metabolic syndrome in children that are overweight with metabolic metrics above the 75th percentile from 5 years of age onwards.¹⁴ Further studies suggested that the incidence of AIWG was far greater in patients on their first antipsychotic treatment than in patients who had previous antipsychotic exposure.¹⁵

Effects of Antipsychotics

There is a rapid weight gain within the first few weeks of antipsychotic drugs treatment which gradually decreases and then observes a plateau over the course of several months.¹⁶ A number of mechanisms have had a trial to explain the weight gain propensity of antipsychotics. Quantity of weight gain varies with the type of antipsychotic drug being taken as well as the individual patient characteristics. Most of the research that has been focused on Clozapine and Olanzapine, the two medications identified to cause the highest rate of weight gain, have indicated the likelihood to their actions at serotonin, 5-HT_{2A} and 5-HT_{2C}, Dopamine D₂ and D₃, Histamine H₁ and Muscarinic M₃ receptors.¹⁷ Moreover, with genetic predisposition of AIWG particularly involving Melanocortin 4 Receptor (MC4R), the Serotonin 2C Receptor (HTR_{2C}), the Leptin, the Neuropeptide Y (NPY) and the Cannabinoid Receptor 1 (CNR1) genes may help us identify the population at risk efficiently by DNA analysis.¹⁸

Treatment

In order to decrease the incidence rate and related co-morbidities with AIWG, many non-pharmacological & pharmacological suggestions and treatment plans have been introduced. A study conducted on 35 patients who had reported to gain weight on antipsychotic treatment concluded that cognitive approach towards health immensely regulated their behaviour along with pertaining healthy diet and active lifestyle. As a consequence many of the patients showed significant weight loss.¹⁹ In addition, antipsychotics like Lurasidone are suggested to be more efficacious with lower incidence of AIWG.²⁰ At the same time, Metformin is effective in treating antipsychotic induced weight gain in patients.²¹

CONCLUSION

Antipsychotic drugs are prescription medications and must be used under close supervision by healthcare workers. As environment and genetics both play a vital role in contributing to risk factors, doctors must take these concerns into account for prescription. Each antipsychotic drug presents with a unique side effect profile, which means proper risk-benefit assessment must be made mandatory before these medications are prescribed. Furthermore, before the patient goes into deteriorating status, timely monitoring to detect AIWG and other associated side effects must be taken into consideration along with proper counselling during their duration of treatment.

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