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The impact of adjuvant aripiprazole on olanzapine-induced metabolic adverse effects in schizophrenic patients: a Systematic Review

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Abstract

Background: Olanzapine is a second-generation atypical antipsychotic drug which is commonly used in the treatment of psychotic disorders such as schizophrenia. It has been associated with metabolic adverse effects such as, weight gain, hyperglycaemia, dyslipidemia and this has been shown to contribute to the reduction of life expectancy of schizophrenic patients. It has been suggested that adjunctive aripiprazole (another atypical antipsychotic) reduces some of the metabolic adverse effects caused by olanzapine. This systematic review aimed to assess whether adjunctive aripiprazole is effective at reducing metabolic adverse effects induced by olanzapine.

Methods: A systematic review was conducted and due to heterogeneity in the data, a narrative synthesis was completed. A systematic search strategy was developed, recorded, and applied to multiple academic search engines. Using the PRISMA flow diagram, the literature search found a total of 853 results with final inclusion of 7 research articles. Based on a specific inclusion and exclusion criteria, a wide range of study designs were included in the review such as randomised control trials (RCTs), open label trials and case series. Key outcomes were identified which included: glucose levels, lipid profile (which included triglycerides as well as HDL, LDL, and total cholesterol), body weight, BMI and waist circumference. The results were recorded and analysed using narrative synthesis, and conclusions were drawn based on the results reported.

Results: Statistically significant decreases in fasting triglycerides were consistent across multiple studies, supporting the hypothesis that aripiprazole may counteract some of the metabolic adverse effects of olanzapine. Adjunctive aripiprazole shows potential weight loss benefits, with some studies reporting significant reductions in weight and BMI, while one other found no meaningful change. However, this may be a dose dependent outcome, as the study that found no significant change in weight used a substantially lower dose of aripiprazole compared to other studies. Effects on cholesterol and fasting glucose showed non statistically significant reductions and others showed minimal or no impact. Psychiatric

symptom control remained stable in most studies, suggesting that aripiprazole does not negatively affect schizophrenia symptoms while potentially providing metabolic advantages.

Conclusions: Adjunctive aripiprazole had variable effects on metabolic parameters in patients on olanzapine therapy, however reductions in triglycerides appeared consistent among the majority of the data and some studies reported significant weight loss. This highlighted that aripiprazole does have some effect in reducing metabolic adverse effects caused by olanzapine. However, there are many possible factors that could influence the metabolic changes shown. This highlights a need for further research and investigations, investigations that will address the gaps in the current research, such as longer randomised control trials (RCTs) with more participants and more information regarding effective dose response.

Keywords: Adjunctive aripiprazole | Olanzapine | Schizophrenia | Metabolic adverse effects

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