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A Case of Olanzapine-Induced Dyslipidemia

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Introduction: Elevation in lipid biomarkers, specifically total cholesterol (TC), LDL-C, and triglyceride levels, can be observed within 4 weeks of initiation of atypical anti-psychotic medications without significant HDL-C alteration. Olanzapine use is associated with a five-fold risk increase in risk of developing dyslipidemia and higher predisposition to an ASCVD event. Routine assessment of lipid profile is crucial to minimize cardiovascular risk among patients with psychiatric comorbidities in need of long-term anti-psychotics.

Case: A 51-year-old woman with history of breast cancer on adjuvant hormonal therapy was prescribed olanzapine 5mg daily with venlafaxine and lithium due to an acute manic episode (Month 0). Her lipid profile pre- and post- 3 months of olanzapine initiation: TC 224 to 296 mg/dL, LDL-C 129 to 198 mg/dL, HDL-C 63 to 68 mg/dL, Triglyceride 162 to 138 mg/dL, respectively. She did not have a prior history of cardiac disease, diabetes, hypertension, or family history of hypercholesterolemia. Upon initiation of high intensity statin (Month 16) and discontinuation of olanzapine (Month 17), lipid profile (Month 18) improved as follows: TC 115 mg/dL, LDL-C 47 mg/dL, Triglyceride 76 mg/dL, HDL-C 55mg/dL. She was transitioned from high to moderate intensity statin (Month 18), and follow-up lipid profile (Month 22) was: TC 163 mg/dL, LDL-C 72 mg/dL, Triglyceride 104 mg/dL, HDL-C 70 mg/dL.

Discussion: Among commonly used atypical anti-psychotics, olanzapine and clozapine have the highest efficacy, but also confer the greatest risk for metabolic derangements. Elevation in TC and triglyceride levels are well described with quetiapine, olanzapine, and clozapine. The highest elevation in LDL-C is seen with olanzapine, whereas no strong correlation with HDL-C alteration has been established. The temporal relationship between marked dyslipidemia with olanzapine initiation and resolution upon discontinuation in our case demonstrates the importance of routine lipid profile surveillance in this population. Current guidelines recommend periodic measurement at baseline prior to initiation, followed by 3 and 12 months, then annual screening. This is particularly critical among patients with pre-existing cardiovascular risk factors and prior ASCVD events.

Conclusion: Overall, treatment with anti-psychotics is associated with lower cardiac and all-cause mortality compared to placebo. While psychotropic-induced dyslipidemia is an associated risk, the benefits of long-term control of psychotic symptoms must be weighed. If continuation of anti-psychotics is warranted, clinicians should consider concomitant lipid lowering therapy and lifestyle modifications.

Disclosure Statement: The authors report there are no competing interests to declare.