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Body Weight, BMI, Plasma Leptin, Insulin and Fasting Glucose Levels in Schizophrenic Patients Receiving Olanzapine

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Objective: The aim this study was to investigate possible mechanisms behind olanzapine-associated weight gain.

Method: Thirteen psychiatric inpatients (all meeting DSM- criteria for schizophrenia or schizophreniform disorder) receiving olanzapine in 4 hospitals were studied. Body weight, plasma leptin, insulin and fasting glucose levels were measured five-times over 6 weeks. Body mass index (BMI) was calculated.

Result: At the end of sixth week, body weight, BMI, plasma leptin, insulin and fasting glucose levels were significantly increased from baseline. Both insulin and leptin plasma levels were significantly increased from baseline at the end of the sixth week of treatment. Both body weight and BMI were significantly increased from baseline at the end of the first week, the fourth week and sixth week, respectively. Fasting glucose was significantly increased from baseline at the end of the fourth week and sixth week, respectively. Between baseline and sixth week, the body weight, BMI, plasma leptin and fasting glucose levels were significantly correlated to insulin level. There was a tendency toward a correlation between BMI and leptin level, whereas no correlation was found between body weight and leptin.

Conclusion: Olanzapine treatment was associated with weight gain and elevated level of leptin, insulin and fasting glucose. Elevated insulin levels and hyperleptinemia may be mechanisms behind olanzapine-induced weight gain.