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MEETING ABSTRACT

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Reward alterations, dopamine D₂ receptor blockade and metabolic side effects in first-episode schizophrenia patients
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Background: Dopamine receptor antagonists are the cornerstone of pharmacological treatment of psychoses. Numerous side-effects have been associated with D₂ receptor blockade, but the precise mechanisms underlying some of these are still poorly understood. We have previously shown a relation between reward disturbances in schizophrenia patients and weight gain in relation to treatment with a selective D₂ receptor antagonist. In a subsample of the same patients we here tested potential associations between reward disturbances, weight gain and the paraclinical metabolic measures, such as cholesterols and glucose.

Methods: As a part of a multimodal study, 39 patients went through a functional magnetic resonance imaging (fMRI) while playing a monetary reward task, before and after they received individual doses of amisulpride for six weeks (mean dose 272 mg, range 50–800 mg). In a subsample of 27 patients, blood samples including glucose, blood lipids and se prolactin were obtained.

Results: After six weeks patients had a significant weight gain of 2.3 kg (SD 2.8; range −4 to +8, p < 0.001). All metabolic measurements numerically increased, and significant increases were observed in total cholesterol (mean 0.36, SD 0.69, p = 0.01) and se prolactin (mean 1.78, SD 0.81, p < 0.001). In this subsample, we confirmed previous observations of a negative correlation between baseline reward activity during anticipation of salient events and weight gain; and also between normalization of the reward activity and weight gain. We found no relations between reward activity or weight change and any of the metabolic measures or prolactin.

Conclusions: As expected, antipsychotic treatment on average caused weight gain and cholesterol changes in the patients. The weight gain was predicted by reward alterations at baseline and was correlated with changes in the reward system during treatment. However, weight gain and reward alterations were not directly associated with any changes in metabolic measures or prolactin.

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