
CRTC3 POLYMORPHISMS ARE NOT ASSOCIATED WITH OBESITY IN SWISS PSYCHIATRIC POPULATIONS

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Introduction:

Weight gain and obesity are serious problems associated with psychiatric diseases, in which psychotropic treatments play an important role. The *CREB-regulated transcription coactivator 3 (CRTC3)* gene was linked to energy balance in animal models, and in humans *CRTC3 rs8033595* polymorphism was associated with obesity markers only in Mexican-Americans, a population with a high prevalence of obesity.

Objectives:

To determine whether polymorphisms within the *CRTC3* gene are associated with adiposity markers in Caucasian psychiatric patients, a population with also a high prevalence of obesity.

Method:

The association of the *CRTC3 rs8033595* and 2 other selected *CRTC3* polymorphisms (*rs3743401* and *rs3902286*) was investigated in three independent groups of Caucasian psychiatric patients taking weight gain-inducing psychotropic drugs such as atypical antipsychotics, lithium and valproate ($n_1=168$, $n_2=188$, and $n_3=448$). Body mass index (BMI) was chosen as a marker for obesity. Generalized Additive Mixed Model (GAMM) was used to test the association of *CRTC3* polymorphisms with BMI.

Results:

Obesity prevalence was high in the three psychiatric populations ($n_1:40\%$, $n_2:28\%$ and $n_3:19\%$). The three *CRTC3* polymorphisms did not deviate from Hardy-Weinberg equilibrium and the minor allelic frequency (MAF) was 44%, 25% and 19% for *CRTC3 rs8033595*, *rs3743401* and *rs3902286*, respectively. None of the *CRTC3* polymorphisms were found to be associated with BMI in any of the three psychiatric samples and when analyzing the combined samples together.

Conclusion:

CRTC3 polymorphisms seem not to have an influence on adiposity markers (BMI) in Caucasian psychiatric patients receiving drugs inducing weight gain.