SSRI treatment-induced weight loss is associated with a 5-HT2C receptor polymorphism

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Introduction

Selective serotonin reuptake inhibitors (SSRIs) are commonly used for treatment of panic disorder. These drugs affect serotonin neurotransmission with consequences in altered food intake and body weight change. While it is established that SSRI treatment may result in weight loss, not all patients exhibit weight change during SSRI treatment. The variability between individuals in this side effect may be partially explained by pharmacogenetic factors.

The 5-HT2C receptor provides a good candidate. The strongest evidence lies with the functionally active -759C/T polymorphism (Hill and Reynolds, 2007) in the promoter region of the 5-HT2C receptor gene for which an association with antipsychotic induced weight gain was described (Reynolds et al 2002).

We have investigated association of the -759C/T 5-HT2C receptor gene polymorphism with weight changes following SSRI treatment of panic disorder.

Methods

105 patients, mean age 37.6 ± 10.6 y with a DSM-IV diagnosis of panic disorder took part in the study, which was an open, naturalistic design. All subjects were Caucasian and from a rural or semi-rural environment in the Transcarpathian region of Western Ukraine.

Patients received monotherapy with paroxetine (n=16), sertaline (n=52) or escitalopram (n=37). Body weight was recorded at baseline, after one month of drug treatment, and after a further 2-9 months. Blood was taken, DNA extracted and genotyped using standard PCR methods. Data is expressed as means ± SD.

Results

Mean weight of the patients before treatment was 78.5 ± 16.4 kg. The mean loss of weight during the first month was 0.78 kg and 0.58 kg per month over the course of the study. No significant differences between drugs in their effects on body weight was observed.

-759C/T 5-HT2C receptor polymorphism was significantly associated with weight change. The carriers of T/CT genotype showed greater weight loss after the first month of treatment in comparison to their C/CC counterparts (T/CT: -1.78 ± 3.06 kg vs. C/CC: -0.58 ± 1.97 kg, p=0.021, Fig.1). Mean weight loss per month showed a similar significant association with genotype (T/CT: -0.90 ± 1.02 kg vs. C/CC: -0.50 ± 0.82 kg, p=0.04, Fig.2). There was no significant genotype association with body weight prior to treatment (p=0.28). The effect was independent of gender and age.

References

Reynolds et al., Lancet 2002; 359:2086-2087

Conclusions

The results indicate that -759C/T 5-HT2C receptor gene polymorphism could have predictive value in determining weight change of patients receiving SSRIs for treatment of panic disorder.