Poster

# [P26-3] P26-3: Central nervous system drugs (2)

Chair: Chiyo Imamura, Japan

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## [P26-3-7] Association between 5-HTR2C -759C/T (rs3813929) and -697G/C (rs518147) gene polymorphisms and risperidone-induced metabolic syndrome in Indian population

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Keywords: Risperidone, metabolic syndrome, polymorphisms, serotonin receptor gene, DNA sequencing

**Background**

Serotonin-dopamine antagonist, such as, risperidone-induced metabolic syndrome (RIMS) has been inconsistently linked in the literature with polymorphisms of serotonin 5-HTR2C receptor gene. This case control study was conducted to examine the potential association of two functional polymorphisms of the promoter region of this gene: -759C/T (rs3813929) and -697G/C (rs518147) with RIMS in the Indian population.

**Methods**

Fifty-two drug-naïve adult patients of either sex, having no metabolic syndrome (American Association of Clinical Endocrinologists criteria) before initiating treatment and receiving risperidone monotherapy for 12-18 months were recruited in two arms, of whom 26 had RIMS and 26 did not have RIMS. Polymerase chain reaction, product amplification (agarose gel electrophoresis) and DNA sequencing was performed to check for the respective polymorphisms. Multiple logistic regression analysis was performed and adjusted odds ratio (AOR) with 95% confidence interval (CI) was calculated using SPSS (v 21).

**Results**

The result of polymorphisms [rs3813929: CC (wild): 59.6%, TT (variant): 25%, CT (heterozygous): 15.4% and rs518147: GG (wild): 55.7%, CC (variant): 25%, GC (heterozygous): 19.3%] did not deviate from Hardy–Weinberg equilibrium ($p$>0.05). For both rs3813929 and rs518147, the variant alleles were significantly associated with RIMS (AOR: 7.27, 95% CI: 0.04-1205.25 and AOR: 7.18, 95% CI: 0.05-1117.34 respectively). The other clinically important factors associated with RIMS were: male sex (AOR: 2.45, 5% CI: 0.58-10.44), smoking habit (AOR: 1.37, 95% CI: 0.3-6.17), positive family history of ischemic heart disease, diabetes or stroke (AOR: 1.31, 95% CI: 0.34-5.09) and dose of risperidone prescribed (AOR: 5.81, 95% CI: 0.11-304.35).

**Conclusions**

This was the first study conducted in the Indian population to show that two functional polymorphisms in the 5-HTR2C gene (rs3813929 and rs518147) are strongly associated with RIMS. Further investigations on other polymorphisms of this important gene are required to determine whether this gene influences treatment

response as well.