AS07-03 - GENE-ENVIRONMENT INTERACTION IN SUICIDE ATTEMPTS

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Introduction: While suicidal behavior is frequently accompanied by serotonergic system alterations, specific associations with variants of the serotonin 2A receptor gene (*HTR2A*) have been inconsistent.
Objectives: To confirm and extend previous associations of *HTR2A* with suicidal behavior.
Aims: To study genetic effects, as well as gene-environment interaction (GxE) and parent-of-origin effects (POE) that may further contribute to association.
Methods: Using a family-based study design of 660 offspring who have made a suicide attempt (SA) and both parents, we conducted an association and linkage analysis of single nucleotide polymorphisms (SNPs) with extensive gene coverage. We included the study of GxE with physical and sexual assault (with a cutoff age of 18 years), as well as cumulative types of stressful life events (lifetime SLEs). We also studied POE at SNP rs6313.
Results: The main finding was a GxE between rs6313 and exposure to lifetime SLEs in the total sample, driven by overtransmission of CT and undertransmission of TT. Further exploratory analysis revealed a significant POE in this GxE in females which followed a polar overdominant imprinting pattern. In addition, several nominally significant findings were observed with other SNPs, many of which had previously reported and/or hypothesized functional effects.
Conclusions: This study found multiple associations of *HTR2A* with SA, and strongest statistical evidence for a GxE involving rs6313. It further suggested the importance of taking into account different genetic models of inheritance and GxEs with regard to *HTR2A*.

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