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# TPH2 POLYMORPHISMS AND ALCOHOL-RELATED SUICIDE

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Introduction: Substantial evidence from family, twin, and adoption studies corroborates implication of genetic and environmental factors, as well as their interactions, on suicidal behavior and alcoholism risk. Serotonergic disfunction seems to be involved in the pathophysiology of substance abuse, and has also an important role in suicidal behavior.
Objectives: Recent studies of the tryptophan hydroxylase 2 (TPH2) showed mild or no association with suicide and alcohol-related suicide.
Aims: Investigation of the role of five single nucleotide polymorphisms (SNPs), one functional (p.Arg441His), two in intron 5 (Rs1843809, Rs1386493), and two in the 5' regulatory promoter region (Rs4131348, Rs11178997) of TPH2, in association with suicide and alcohol-related suicide on a population with one of the highest suicide rates in the world.
Methods: We performed qRT-PCR (Real-Time Polymerase Chain Reaction) genotyping analysis of SNPs and alcohol analysis on 388 suicide victims and 227 controls.
Results: The results showed association between suicide ($P(\chi^2) = 0.043$) and alcohol-related suicide ($P(\chi^2) = 0.021$) for SNP Rs1843809. A tendency for association was determined also for polymorphism Rs1386493 ($P(\chi^2) = 0.055$) and alcohol-related suicide. Data acquired from psychological autopsies in a subsample of suicide victims (n = 79) determined more impulsive behavior ($P(\chi^2) = 0.016$) and verbal aggressive behavior ($P(\chi^2) = 0.025$) in the subgroup with alcohol misuse or dependency.
Conclusions: Our results suggest implication of polymorphisms in suicide and alcohol-related suicide, but further studies are needed to clarify the interplay among serotonergic system disfunction, suicide, alcohol dependence, impulsivity and the role of TPH2 enzyme.

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