DRD2/ANKK1 TaqIA POLYMORPHISM IS ASSOCIATED WITH LOWER COGNITIVE INSTABILITY IN PSYCHOPATHY

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Background and Aims:

Psychopathy defines a group of individuals with severe emotional dysfunction and antisocial behavior. Dopamine metabolism has been implicated in the genesis of this disruptive syndrome. The polymorphism **DRD2/ANKK1 TaqIA (rs1800497)** has been associated with a reduced number of dopamine binding sites in the striatum and could be related to psychopathy, substance use disorders and other neuropsychiatric pathologies. Furthermore, the **A2 allele** from this polymorphism has been linked with **higher levels of impulsivity**. We aim to test the hypothesis that DRD2/ANKK1 TaqIA (rs1800497) is associated to impulsivity in individuals with psychopathy.

Methods:

A sample of 134 male inmates was analysed with a battery of clinical and psychometric standardized instruments: the Mini International Neuropsychiatric Interview, the Psychopathy Checklist-Revised, the Addiction Severity Index - European Version, the Barratt Impulsivity Scale and the Impulsive Premeditated Aggression Scale. In a subsample of 46 patients, allelic discrimination for the DRD2/ANKK1 TaqIA (rs1800497) polymorphisms was determined through real-time polymerase chain reaction (PCR) technique, using a TaqMan SNP genotyping assay with fluorogenic probes (Applied Biosystems, Foster City, CA).

Results:

Individuals with psychopathy and **A2 allele (n=15)** had **higher cognitive instability scores** ($p<0.05$) than individuals with psychopathy and A1 allele (n=5). PCL-R scores were also different according to genotype. Individuals with psychopathy and **A2 allele had higher scores in the interpersonal facet and the lifestyle facet** than individuals with psychopathy and A1 allele ($p<0.05$ – one-tailed). We also detected that Individuals with psychopathy and A2 allele were older than individuals with psychopathy and A1 allele ($p<0.05$).

Conclusions:

The DRD2/ANKK1 TaqIA is associated with different phenotypes of psychopathy, namely impulsivity, emotional dysfunction, and antisocial behavior. DRD2 receptor could have a role in abnormal behavior, determining different approaches of decision making according to expected reward and punishment. Present results reinforce the utility of the search for biomarkers that can open new avenues in the treatment and prevention of this neglected disorder.

References

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