

## **BDNF and CGRP interaction: implications in migraine susceptibility.**

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### **Abstract**

#### **OBJECTIVES:**

Migraine pathophysiology involves several pathways. Our aims were to explore a possible role of the brain-derived neurotrophic factor gene (BDNF) in migraine susceptibility; to study, for the first time, the calcitonin gene-related peptide gene (CGRP); and a possible interaction between the two.

#### **METHODS:**

Using a case-control approach, four tagging single nucleotide polymorphisms (SNPs) (rs7124442, rs6265, rs11030107, and rs2049046) of BDNF and one tagging SNP-rs1553005-of CGRP were analyzed in 188 cases and 287 controls. A multivariable logistic regression was performed, adjusting for gender. Allelic and haplotypic frequencies were estimated. Interaction was assessed by a stepwise multivariable-logistic regression and confirmed by a multifactor dimensionality reduction analysis.

#### **RESULTS:**

No significant main effects were found; however, a significant interaction was found between BDNF and CGRP, showing an increased risk for the AT-genotype of rs2049046 and the GC-genotype of rs1553005 (odds ratio=1.88, 95% confidence interval: 1.20-2.93) for migraineurs.

#### **CONCLUSION:**

Our data support the hypothesis of an interaction between BDNF and CGRP in migraine susceptibility that should be further explored.