

Cephalalgia. 2010 Nov;30(11):1375-82

BDNF and CGRP interaction: implications in migraine susceptibility.

Lemos C, Mendonça D, Pereira-Monteiro J, Barros J, Sequeiros J, Alonso I, Sousa A.

Department Estudos de Populações, ICBAS, Universidade do Porto, Centro Hospitalar do Porto-Hospital de Santo António, Portugal. absousa@icbas.up.pt

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.