

MEETING ABSTRACT

Open Access

EHMTI-0241. Association between migraine and sod1 and sod2 genes polymorphisms: the biobim study

P Barbanti^{1*}, R Palmirotta², ML De Marchis², G Ludovici², C Ialongo³, G Egeo¹, C Aurilia¹, L Fofi¹, P Ferroni², D Della Morte⁴, F Guadagni²

From 4th European Headache and Migraine Trust International Congress: EHMTIC 2014 Copenhagen, Denmark. 18-21 September 2014

Introduction

Several studies suggest that an increased oxidative stress is a key event in migraine, especially in the form with aura. One of the most efficient first line antioxidant defense system of cells exposed to oxygen is Superoxide Dismutase (SOD) system. The SOD1 gene presents a polymorphism (A/C substitution - rs2234694) resulting in lower serum activity in subjects carrying CC genotype. SOD2 gene presents a polymorphism (C/T transition -rs4880 – Ala16Val) which leads to an instable mRNA and reduced transport of the enzyme in TT genotype carriers.

Aim

To investigate whether these variants are associated to migraine without aura (MO), migraine with aura (MA), or chronic migraine (CM) in a cohort of Caucasian patients from the Interinstitutional Multidisciplinary BioBank (BioBIM).

Methods

From 2009 to 2013, 490 Caucasian unrelated migraineurs and 246 healthy control subjects were consecutively recruited at the our Headache and Pain Unit. Demographic and clinical migraine features were carefully detailed and gathered with face-to-face interviews. The polymorphisms were determined by direct sequencing analysis.

Results

Genotypes and the allele frequencies of polymorphisms in migraineurs and controls did not significantly differ from

those predicted by the Hardy–Weinberg equilibrium. When considering unilateral cranial autonomic symptoms (UAs), we observed a significant increase of SOD2 rs4880 TT (Val) genotype in MA (P=0.042).

Conclusions

SOD2 TT genotype correlates with MA with UAs. We hypothesize that in SOD2 TT carriers with MA, a defective control of oxidative phenomena characterizing cortical spreading depression leads to a more intense antidromic stimulation of trigeminal endings, thus triggering the trigemino-autonomic reflex.

No conflict of interest.

Authors' details

¹Headache and Pain Unit Department of Neurological Motor and Sensorial Sciences, IRCCS San Raffaele, Rome, Italy. ²Interinstitutional Multidisciplinary Biobank (BioBIM) Biomarker Discovery and Advanced Technologies (BioDAT), IRCCS San Raffaele, Rome, Italy. ³Department of Internal Medicine, University of Rome "Tor Vergata", Rome, Italy. ⁴Department of System Medicine, University of Rome "Tor Vergata", Rome, Italy.

Published: 18 September 2014

doi:10.1186/1129-2377-15-S1-B4

Cite this article as: Barbanti et al.: EHMTI-0241. Association between migraine and sod1 and sod2 genes polymorphisms: the biobim study. *The Journal of Headache and Pain* 2014 **15**(Suppl 1):B4.

¹Headache and Pain Unit Department of Neurological Motor and Sensorial Sciences, IRCCS San Raffaele, Rome, Italy
Full list of author information is available at the end of the article