

Abstract

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MTHFR 677C>T and ACE D/I polymorphisms in migraine: a systematic review and meta-analysis.

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BACKGROUND: Data on the association between the MTHFR 677C>T and ACE D/I polymorphisms and migraine including aura status are conflicting.

OBJECTIVE: The objective of this study is to perform a systematic review and meta-analysis on this topic.

METHODS: We searched for studies published until March 2009 using electronic databases (MEDLINE, EMBASE, Science Citation Index) and reference lists of studies and reviews on the topic. Assessment for eligibility of studies and extraction of data was performed by 2 independent investigators. For each study we calculated the odds ratios (OR) and 95% confidence intervals (CI) assuming additive, dominant, and recessive genetic models. We then calculated pooled ORs and 95% CIs.

RESULTS: Thirteen studies investigated the association between the MTHFR 677C>T polymorphism and migraine. The TT genotype was associated with an increased risk for any migraine, which only appeared for migraine with aura (pooled OR = 1.48, 95% CI 1.02-2.13), but not for migraine without aura. Nine studies investigated the association of the ACE D/I polymorphism with migraine. The II genotype was associated with a reduced risk for migraine with aura (pooled OR = 0.71, 95% CI 0.55-0.93) and migraine without aura (pooled OR = 0.84, 95% CI 0.70-0.99). Results for both variants were driven by studies in non-Caucasian populations. Results among Caucasians did not suggest an association. Extractable data did not allow investigation of gene-gene interactions.

CONCLUSIONS: The MTHFR 677TT genotype is associated with an increased risk for migraine with aura, while the ACE II genotype is protective against both migraine with and without aura. Results for both variants appeared only among non-Caucasian populations. There was no association among Caucasians.

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