

MTHFR polymorphisms as a modifier of rectum cancer susceptibility to their environmental risk factors in northeast Thailand

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Background: Polymorphisms in methylenetetrahydrofolate reductase (MTHFR), like MTHFR C677T and A1298C, are known to be associated with predispositions for several cancers. This study aimed to evaluate the effects of MTHFR polymorphisms on rectum cancer risk and possible interactions with environmental factors in Northeast Thailand, a low incidence area.

Methods: The present hospital-based case-control study was conducted during 2002-2006 with recruitment of 112 rectum cancer cases and 112 age and sex matched controls. Information was collected using a structured-questionnaire. Blood samples were obtained for assay of MTHFR C677T and A1298C genotypes by polymerase chain reaction with restriction fragment length polymorphism (PCR-RFLP) techniques. Associations between variables and rectum cancer were assessed using conditional logistic regression.

Results: Interactions were observed between the MTHFR C677C hetero-type and high pork consumption (adjusted OR=10.06; 95% CI: 1.10-91.40), alcohol consumption (OR=5.58; 95% CI: 0.76-41.0) and rectum cancer. Interactions were observed between the MTHFR C677C wild-type and consumption of tea or coffee and rectum cancer with an adjusted OR=0.20 (95% CI: 0.05-0.79). History of having hemorrhoid was risk of rectum cancer in both wild-type and hetero-type MTHFR C677C and MTHFR A1298C genotypes.

Conclusion: Rectum cancer in Thai population is associated with alcohol and pork consumption and history of having hemorrhoid. The appropriate life style and food consumption habit is important for rectum cancer prevention.