International Platform of Registered Systematic Review and Meta-analysis Protocols

INPLASY

INPLASY2023110057

doi: 10.37766/inplasy2023.11.0057

Received: 14 November 2023

Published: 14 November 2023

Meta and Pooled Analysis of Methylenetetrahydrofolate Reductase (MTHFR) C677T Polymorphism and Folic Acid and Colorectal Cancer

Meng, Y[1].

Corresponding author:
Meng Ye

942058777@qq.com

Author Affiliation:
Guangdong Medical University.

ADMINISTRATIVE INFORMATION

Support - Guangdong Medical University.

Review Stage at time of this submission - Completed but not published.

Conflicts of interest - None declared.

INPLASY registration number: INPLASY2023110057

Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 14 November 2023 and was last updated on 14 November 2023.

INTRODUCTION

Review question / Objective This study targets on the effect of MTHFR genotype on the incidence of colorectal cancer and the combination of the intake of folate acid and MTHFR genotype on the incidence of colorectal cancer.

Condition being studied Among the causative factors of colorectal cancer, aberrant methylation of oncogenes and proto-oncogenes is critical for disease development, with folate providing methyl for methylation in one-carbon metabolism. However, folate and MTHFR, a key gene for folate metabolism, are often used to study the relationship between the development of hypertension and other diseases, and few studies have been conducted in the direction of colorectal cancer based on the effect of methylation. Therefore, it is necessary to explore the correlation between MTHFR gene polymorphisms and serum folate levels and colorectal cancer risk, and to verify that MTHFR gene variants are one of the genetic susceptibility factors of colorectal cancer, which can help to provide a reference for personalized diagnosis and treatment, and provide a new idea and direction for targeted therapy.

METHODS

Participant or population The confirmed colorectal cancer patients and controls (healthy people).

Intervention This meta-analysis researches the incidence rate of colorectal cancer influenced by MTHFR genotype..

Comparator The odds ratio of different MTHFR genotype on the incidence rate of colorectal cancer.

Study designs to be included Meta-analysis.

Eligibility criteria The elected standard: 1. focus on the 677C alleleof the MTHFR gene on colorecrtal cancer; 2. had specify case and control occurrences of the CC, CT, and TT genotypes; 3. case-control studies or retrospective analysis; 4. did not focus on treatment of colorectal cancer.

Information sources We searched articles from PubMed and Embase databases.

Main outcome(s) The overall meta-analysis odds ratio for CRC for persons with the TT genotype was.

Quality assessment / Risk of bias analysis The results of quality assessment of nonrandomized studies used the Newcastle–Ottawale the scale Risk of bias analysis used Forest plots and Odd radio.

Strategy of data synthesis In order to determine their 95% confidence intervals (CIs) and the odds ratios (ORs), the frequency of the events was subtracted. Between-study heterogeneity was assessed using chi-square and I2 tests. A Cochran Q statistic p-value 50% was used to indicate statistically significant heterogeneity between trials. According to the degree of heterogeneity, fixed-effect models or random-effects models were used to calculate summary statistics. When at least ten studies were involved in a particular outcome, a funnel plot was recommended for small-study effects assessment, according to version 6.3 of the Cochrane Handbook for Systematic Reviews of Interventions. Review Manager 5.3 was used for meta-analysis.

Subgroup analysis MTHFR genotype and intake of folate acid.

Sensitivity analysis In order to determine their 95% confidence intervals (CIs) and the odds ratios (ORs), the frequency of the events was subtracted. Between-study heterogeneity was assessed using chi-square and I2 tests. A Cochran Q statistic p-value 50% was used to indicate statistically significant heterogeneity between trials. According to the degree of heterogeneity, fixed-effect models or random-effects models were used to calculate summary statistics. When at least ten studies were involved in a particular outcome, a funnel plot was recommended for small-study effects assessment, according to version 6.3 of the Cochrane Handbook for Systematic Reviews of Interventions. Review Manager 5.3 was used for meta-analysisthis article did not included sensitivity analysis.

Country(ies) involved China.

Keywords MTHFR; colorectal cancer; meta-analysis.

Contributions of each author

Author 1 - Meng Ye.
Email: 942058777@qq.com