عنوان مقاله:

Gene-Gene Interaction Study Between Genetic Polymorphisms of Folate Metabolism and MTR SNPs on Prognostic Features Impact for Breast Cancer

محل انتشار:

مجله گزارش های بیوشیمی و زیست شناسی مولکولی, دوره 11, شماره 1 (سال: 1401)

تعداد صفحات اصل مقاله: 13

نویسندگان:

Moataza Moataza Hassan Omran - *Microbial Biotechnology Department, Genetic Engineering Division, National Research Centre, Cairo, Egypt (۱۲۶۲۲).*

Basma El-Sayed Fotouh - *Microbial Biotechnology Department, Genetic Engineering Division, National Research Centre, Cairo, Egypt (۱۲۶۲۲).*

Wafaa Ghoneim Shousha - *Chemistry Department, Faculty of Science, Helwan University, Cairo, Egypt (۱۱۷۹۵).*

Abeer Ismail - *Department of Clinical and Chemical Pathology, National Cancer Institute, Cairo University, Giza, Egypt (۱۲۶۱۳).*

Shimaa Shawki Ramadan - *Chemistry Department, Faculty of Science, Helwan University, Cairo, Egypt (۱۱۷۹۵).*

خلاصه مقاله:

Background: Breast Cancer (BC), the second leading cause of cancer mortality after lung cancer and varied across the world due to genetic and environmental factors. In this study, we evaluated the interaction between the polymorphisms in genes encoding enzymes of folate metabolism: methylenetetrahydrofolate reductase (MTHFR), methionine synthesis reductase (MTR) with the BC prognostic factors. Methods: This study was conducted on ۱۶۰ Egyptian subjects, ۶۰ controls and ۱۰۰ cases. Sequencing, RFLP analysis in addition to statistical analysis including Chi-squared test, haplotype analysis was used to evaluate associations with BC risk and its clinicopathological parameters. Odds ratios (ORs) and ۹۵% confidence intervals (CIs) were calculated using unconditional logistic regression. Results: Strong significant association with breast cancer risk was observed for the haplotype (T-C-G) of MTHFR C۶۷۷T/ MTHFR A۱۲۸۹C and MTRA۲۵۷۶G and hormonal receptor expression (ER-/PR- /HER۲+), bigger and advanced tumor and metastatic lymph nodes. However, no significant difference was observed for age. Conclusions: The combination of SNPs from MTHFR and MTR genes has a more synergistically genetic effect on BC disease progression. These SNPs could be used as tumor aggressiveness markers among Egyptian females with BC and could help in saving money and time.

کلمات کلیدی:

Breast cancer, Methionine synthesis reductase, MTHFR, PCR-RFLP, SNPs.