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ASSOCIATION OF METHYLENETETRAHYDR OF OLATEREDUCTASE GENEPOLYMORPHISMS (C677TRS1801133ANDA1298C RS1801131) WITH BREAST CANCERIN IRAQIPATEINTS

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ABSTRACT

Background

Methylenetetrahydrofolatereductase (MTHFR) is a critical enzyme in folate metabolism. Folate plays an important role in DNA methylation, synthesis and repair.The folate-metabolizing enzymeispolymorphic at nucleotides 677(C→T) and 1298(A→C), resulting in allozymes with decreased activity.Thus, polymorphisms might influence genetic susceptibility to breast cancer.

Aim

To study the association of MTHFR (C677Tand A1298C) gene polymorphisms with breast cancer in Iraqi women.

Methods

Case-control study consisted of 300 breast cancer patients and 170 healthy control. DNA was extracted from whole blood and genotyping was achieved with specific primers to amplify fragments for digestion with restriction enzymes (polymerase chain reaction– restriction fragment length polymorphism (PCR-RFLP)). Followed by electrophoresis on agarose geland UV visualization

Results

The homozygous genotype (TT) of MTHFR C677T in codominant was significantly increased the risk of breast cancer 4.54 folds with respect to those of the wild type (CC). The homozygous genotype (CC) of MTHFR A1298C in codominant was significantly increased the risk of breast cancer 3.05 folds with respect to those of the wild type (AA).

Conclusions

MTHFR (C677T, A1298C) gene polymorphisms were associated with breast cancer in Iraqi women.

KEYWORDS: MTHFR (C677T and A1298C), Gene Polymorphisms, Breast Cancer