CYP19 gene polymorphisms and the susceptibility to breast cancer in Xinjiang Uigur women


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Received December 4, 2014
Accepted April 27, 2015
Published July 28, 2015
DOI http://dx.doi.org/10.4238/2015.July.28.15

ABSTRACT. In this study, the relationship between CYP19 gene polymorphisms and breast cancer in Xinjiang Uigur women was investigated. A case-control study was designed to compare 112 Uigur breast cancer patients with 139 Uigur healthy controls. Individuals were genotyped for the CYP19 rs10046 polymorphism using polymerase chain reaction restriction fragment length polymorphism (PCR-RFLP). Accordingly, the relationship between the rs10046 polymorphism and the susceptibility of Xinjiang Uigur women to breast cancer was analyzed. Given that the allele at the rs10046 site varies between C and T within the CYP19 gene, the frequency distribution of the C and T allele in breast cancer subjects were 48.2 and 51.8% respectively, and 47.5 and 52.5% in control cases. Moreover, the frequency distribution of the TC, CC, and TT genotype were 26.8, 42.9, and 30.4% in breast
cancer cases, but 18.0, 59.0, and 23.0% in control cases (P < 0.05). Risk factors within the Uigur population for breast cancer included an age ≥ 50 years old, a BMI ≥ 25 kg/m², and a parity ≥ 2. Conversely, an abortion and the CYP19 rs10046 TC genotype were protective factors. Menopause was another independent risk factor for breast cancer in Uigur women after the correction for age, BMI, age at first parity, pregnancy, and breastfeeding. In conclusion, breast cancer in Xinjiang Uigur women is closely connected with the age, BMI, parity, abortion, and CYP19 rs10046 polymorphisms. The TC genotype and an abortion can reduce the risk of the breast cancer disease in Uigur women.

**Key words:** Breast cancer; CYP19 gene; Uigur; Gene polymorphisms