Analysis of Breast Cancer Susceptibility Genes BRCA1 and BRCA2 in Thai Familial and Isolated Early-onset Breast and Ovarian Cancer

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Abstract

Here we report the study on BRCA1 and BRCA2 mutations in 12 Thai breast and/or ovarian cancer families and 6 early-onset breast or breast/ovarian cancer cases without a family history of cancer. Five distinct rare alterations were identified in each gene: four introducing premature stop codons, one in-frame deletion, two missense changes, two intronic alterations and one silent rare variant. The BRCA1 or BRCA2 truncating mutations were detected in four of seven patients with familial or personal history of breast and ovarian cancer, in one of four isolated early onset breast cancer cases and in none of seven breast cancer site specific families. The BRCA1 and BRCA2 mutation yield in Thai patients is consistent with that reported from Europe and North America in similar groups of patients, being particularly high in individuals with personal or family history of breast and ovarian cancer. The BRCA1 and BRCA2 alterations found in this series are different from those identified in other Asian studies, and all but two have never been reported before. We report at least three novel deleterious mutations, the BRCA1 3300delA, BRCA1 744ins20 and BRCA2 6382delT. One in-frame deletion was also found, the BRCA2 5527del9, which segregated within family members of breast-only cancer patients and was thought to be a cancer-related mutation. BRCA1 3300delA and Asp67Glu alterations were detected each in at least two families and thus could represent founder mutations in Thais.

Key Words: breast, cancer, BRCA1, BRCA2, mutation, Thailand

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