Risk of estrogen receptor-positive and estrogen receptor-negative breast cancer and single-nucleotide polymorphism 2q35-rs13387042.

BACKGROUND: A recent genome-wide association study identified single-nucleotide polymorphism (SNP) 2q35-rs13387042 as a marker of...
susceptibility to estrogen receptor (ER)-positive breast cancer. We attempted to confirm this association using the Breast Cancer Association Consortium. METHODS: 2q35-rs13387042 SNP was genotyped for 31,510 women with invasive breast cancer, 1101 women with ductal carcinoma in situ, and 35,969 female control subjects from 25 studies. Odds ratios (ORs) were estimated by logistic regression, adjusted for study. Heterogeneity in odds ratios by each of age, ethnicity, and study was assessed by fitting interaction terms. Heterogeneity by each of invasiveness, family history, bilaterality, and hormone receptor status was assessed by subclassifying case patients and applying polytomous logistic regression. All statistical tests were two-sided. RESULTS: We found strong evidence of association between rs13387042 and breast cancer in white women of European origin (per-allele OR = 1.12, 95% confidence interval [CI] = 1.09 to 1.15; P(trend) = 1.0 x 10(-19)). The odds ratio was lower than that previously reported (P = .02) and did not vary by age or ethnicity (all P > or = .2). However, it was higher when the analysis was restricted to case patients who were selected for a strong family history (P = .02). An association was observed for both ER-positive (OR = 1.14, 95% CI = 1.10 to 1.17; P = 10(-15)) and ER-negative disease (OR = 1.10, 95% CI = 1.04 to 1.15; P = .0003) and both progesterone receptor (PR)-positive (OR = 1.15, 95% CI = 1.11 to 1.19; P = 5 x 10(-14)) and PR-negative disease (OR = 1.10, 95% CI = 1.06 to 1.15; P = .00002). CONCLUSION: The rs13387042 is associated with both ER-positive and ER-negative breast cancer in European women.