Predictors of Contralateral Breast Cancer in BRCA Negative Women

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Breast cancer is the most common cancer diagnosis and second leading cause of death in women. Risk factors associated with breast cancer include: increased age, alcohol consumption, cigarette smoking, white race, physical inactivity, benign breast conditions, reproductive and hormonal factors, dietary factors, and family history. Hereditary breast and ovarian cancer syndrome (HBOC) is caused by mutations in the BRCA1 and BRCA2 genes. Women carrying a mutation in these genes are at an increased risk to develop a second breast cancer. Contralateral breast cancer is the most common second primary cancer in patients treated for a first breast cancer. Other risk factors for developing contralateral breast cancer include a strong family history of breast cancer, age of onset of first primary breast cancer, and if the first primary was a lobular carcinoma, which has an increased risk of being bilateral.

A retrospective chart review was performed on a select cohort of women in an IRB approved database at MD Anderson Cancer Center. The final cohort contained 572 women who tested negative for a BRCA1 or BRCA2 mutation, had their primary invasive breast cancer diagnosed under the age of 50, and had a BRCAPro risk assessment number over 10%. Of the 572 women, 97 women developed contralateral breast cancer. A number of predictors of contralateral breast cancer were looked at between the two groups. Using univariable Cox Proportional Hazard model, thirteen statistically interesting risk factors were found, defined as having a p-value under 0.2. Multivariable stepwise Cox Proportional Hazard model found four statistically significant variables out of the thirteen found in the univariable analysis. In our study population, the incidence of contralateral breast cancer was 17%. Four statistically significant variables were identified. Undergoing a prophylactic mastectomy was found to reduce the risk of developing contralateral breast cancer, while not having a prophylactic mastectomy, a young age at primary diagnosis, having a positive estrogen receptor status of the primary tumor, and having a family history of breast cancer increased a woman’s risk to develop contralateral breast cancer.

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