Cancers in Individuals with BRCA1 and BRCA2 Mutations other than Breast and Ovarian

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Mutations in BRCA1 and BRCA2 cause tumor development in Hereditary Breast and Ovarian Cancer syndrome (HBOC) through accumulation of unrepaird DNA damage. Extensive research of BRCA1 and BRCA2 mutations has led to well-defined breast and ovarian cancer risks in individuals with HBOC. Previous studies have reported additional cancers associated with BRCA mutations; however, the type of cancer, magnitude of risk, and differences between sexes remains to be solidified. Ultimately, a consensus of additional cancer risk can aid in better recognition of at-risk families to recommend for genetic testing and more effective screening and prevention guidelines. A retrospective chart review of MD Anderson Cancer Center patients identified 1081 individuals with a BRCA mutation. A detailed cancer history for each person was collected and compared to the general population incidence rates reported by the CDC using standardized incidence ratios (SIR). Individuals with a BRCA2 mutation had significantly higher number of observed cases compared to expected cases for pancreatic cancer (SIR = 21.7, 95% CI = 13.1-34.0, p value <0.001) in both men and women and prostate cancer in men (SIR = 4.9, 95% CI = 2.0-10.1, p value = 0.002). Individuals with a BRCA1 mutation did not have a significant increase in cancers other than breast and ovarian; however, a trend in melanoma was observed in men and women. The results of this study uphold the current recommendations for HBOC screening of cancers other than breast and ovarian by the National Comprehensive Cancer Network.

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