Cancer Risk Assessment and Genetic Testing Implementation and Uptake at a Breast Imaging Site

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Background

• The American College of Radiology and Society of Breast Imaging recommend that all women be evaluated by age 30 to determine which individuals may benefit from earlier and/or additional breast cancer screening.
• Imaging centers are an ideal setting to provide cancer risk assessment and genetic testing as radiologists screen a high volume of motivated individuals at increased risk for breast cancer.
• The Adventist Health Early All-around Detection (AHEAD) program is a population-based cancer risk assessment and genetic testing program and includes imaging centers.
• In a single breast imaging AHEAD program site, we set out to describe the following:
  – Prevalence of individuals meeting the National Comprehensive Cancer Network (NCCN) criteria for cancer risk genetic testing
  – Interest and uptake rates of genetic testing amongst those meeting criteria
  – Percentage of individuals determined to be at elevated risk for breast cancer (by harboring pathogenic variants or as calculated by the Tyrer-Cuzick breast cancer risk model).

Methods

• A retrospective consecutive cohort of individuals from one Hawaiian Adventist breast imaging AHEAD screening program was collected between 6/23/2021- 5/1/2022.
• Electronic health record integration and patient risk assessment was obtained from CancerIQ.
• Myriad Genetics performed pre-test patient education and germline genetic testing.
• Results disclosure and care management was performed by an AHEAD program physician.
• Descriptive statistics were used for genetic screening and testing completion rates.

Results

• Figure 1 shows the AHEAD program point-of-care workflow.
  • A total of 1,071 patients completed the clinical and family history screening survey.
    • 36.9% of patients screened met NCCN testing criteria (395/1,071 patients) (Figure 2).
  • Of patients who were counseled for genetic testing, 61% expressed interest in genetic testing (240/348 patients).
    – The majority (217/240 or 90.4%) completed testing.
  • 9 patients were identified as carrying a pathogenic mutation (4.1%; 1 ATM, 1 BRCA2, 1 BRIPI, 1 HBO1, 2 MUTYH, 1 RNF43) (Figure 3).
  • Among patients who were eligible for a Tyrer-Cuzick risk calculation (i.e., those who have no prior history of breast cancer), 18.5% had a lifetime breast cancer risk estimate of ≥20% (192/1,039 patients) (Figure 4).

Conclusions

• These results from a single AHEAD program breast imaging site suggest that a substantial percentage of individuals are at elevated risk for breast and other cancers, meet national guideline criteria for genetic testing, and are interested in pursuing genetic risk assessment and testing.
• Implementation of similar programs across imaging practices are likely to increase the identification of patients at increased risk for breast and other cancers.
  – These individuals would benefit from supplemental screenings, preventive interventions, and/or targeted treatment, which would inform ongoing patient care.