

SCREENING

BRCA testing in women younger than 50 with triple-negative breast cancer is cost effective

In the USA, approximately 25% of women with a breast cancer diagnosis are younger than 50 years, and almost 10% of these women will have a *BRCA* mutation. Moreover, of these women, as many as 80% will not have the usual features associated with *BRCA* mutation carriers, such as significant personal family history of breast and/or ovarian cancer or Ashkenazi Jewish ancestry. Therefore, many young women with breast cancer would not have undergone *BRCA* mutation testing.

The current ASCO, US Preventive Services Task Force, American College of Obstetrics and Gynecology, and the National Comprehensive Cancer Network guidelines do not recommend *BRCA* testing for women under 50 years with breast cancer unless there is a family history of breast or ovarian cancer, or they are of Ashkenazi Jewish heritage. Many women younger than 50 who are identified as *BRCA* mutation carriers would be offered

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prophylactic mastectomy and bilateral salpingo-oophorectomy to reduce their cancer risk.

In a study led by Janice Kwon, a cost-effectiveness analysis was developed with the best available data to estimate the costs and health benefits of *BRCA* testing. The researchers used a Markov Monte Carlo simulation to test various criteria for *BRCA* testing. In particular, life expectancy, quality-adjusted life expectancy and cost-effectiveness ratio were analyzed. Although *BRCA* mutation testing in all women with breast cancer younger than 50 could prevent the highest number of breast and ovarian cancers, the cost-effectiveness associated with this approach was unfavorable. However, testing women

with triple-negative breast cancers younger than 50 proved to be both cost effective and could substantially reduce the risk of breast and ovarian cancer. “The results of our study suggest that we should also test women with a triple-negative breast cancer under the age of 50, regardless of family history or ancestry” explains Janice Kwon.

“If all women with triple-negative breast cancers who are younger than 50 in the USA were to be tested systematically for *BRCA* mutations, our model predicts as much as a 23% reduction in new breast cancers and a 41% reduction in ovarian cancers, at acceptable cost. We believe that this criterion should be adopted into current guidelines for *BRCA* mutation testing,” concludes Kwon and her team.

Lisa Hutchinson

Original article Kwon, J. S. *et al.* Expanding the criteria for *BRCA* mutation testing in breast cancer survivors. *J. Clin. Oncol.* 28, 4214–4220 (2010)