Life Expectancy Gains from Cancer Prevention Strategies for Women with Breast Cancer and BRCA1 or BRCA2 Mutations

Reviewers: Li Liu, MD

Précis: Theoretical benefit of various cancer prevention strategies for breast cancer patients with BRCA mutations

Introduction
Women who carry BRCA1 and BRCA2 mutations have a greatly increased risk of breast and ovarian cancers when compared with the general population. The optimal clinical management of women who have had breast cancer with BRCA mutations has not been established. Dr. Deborah Schrag and her colleagues from Memorial Sloan-Kettering Cancer Center report here in the theoretical benefit of various strategies in breast cancer patients with known BRCA1 or BRCA2 mutations.

Method
A hypothetical cohort of breast cancer patients with BRCA1 or BRCA2 mutations were included. They used a decision analysis model to examine the effects of seven prevention strategies on life expectancy and the risk of second cancers: 5 years of tamoxifen therapy, bilateral prophylactic oophorectomy, prophylactic contralateral mastectomy and combinations of these interventions.

Results
A 30 year-old breast cancer patient with BRCA mutations could gain

- 0.4 to 1.3 years of life from tamoxifen therapy.
- 0.2 to 1.8 years of life from prophylactic oophorectomy therapy.
- 0.6 to 2.1 years of life from contralateral mastectomy therapy.
- Women with higher penetrance of BRCA mutations appeared to benefit more in terms of the actual gains in life expectancy.

Discussion
Aggressive secondary cancer prevention measures, particularly prophylactic contralateral mastectomy, can add up to 2 years to the life expectancy of young breast cancer patients who test positive for BRCA1 or BRCA2 mutations. Women should
discuss strategies of how they prefer to prevent secondary cancer with their physicians. It is important to understand that each strategy has risks and benefits.