Editorial Commentary

Is bilateral radiation an option for BRCA mutation carriers with unilateral breast cancer?

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The authors of the paper on prophylactic contralateral irradiation are to be congratulated on completing a study that many thoughts couldn't be done (1). It is now commonplace to do bilateral surgery when there is cancer in one breast as a means of pre-empting a cancer in the contralateral breast (2,3). In the case of BRCA mutations, this strategy may be proposed by the physician but for non-carriers it is usually the patient who requests the operation (3). But it is not the case that we offer bilateral radiation to women with cancer in one breast to prevent cancer in the opposite breast—even though the logic is pretty much the same. We know that the risk of contralateral breast cancer in a woman with a BRCA1 or BRCA2 mutation and breast cancer reaches 30 percent in the opposite breast at twenty years from diagnosis (4,5). We know that ipsilateral irradiation reduces the risk of breast cancer recurrence in the treated breast (6). These ipsilateral cancers are a combination of new primaries and local recurrences. Therefore it seems logical that contralateral irradiation might reduce cancer risk in the opposite breast—unproven but worth a try. Evron *et al.* offered contralateral breast irradiation to BRCA carrier patients who declined contralateral mastectomy (1). After six years there were ten contralateral cancers in the non-irradiated breast and two cancers in the irradiated breasts (HR =0.18, P=0.010). The results, although not definitive are pretty convincing. What are we to make of this? It seems that options for unilateral hereditary breast cancer are lumpectomy and bilateral irradiation or bilateral mastectomy. Bilateral mastectomy is the most complete surgery and offers the most in terms of reducing cancer worry, preventing new cancer and reducing cancer mortality (2). Also bilateral mastectomy removes the patient from the burden of undergoing annual screening with mammography or MRI. However, bilateral mastectomy is more invasive and has consequences in terms of body image and breast sensation. I think that the data from Israel is probably sufficient to justify offering carriers with breast cancer the option of bilateral irradiation, but I would strongly suggest continued follow-up and documenting of these patients and outcomes to allow further evaluation of the endpoints. It also remains to be seen if, after prophylactic irradiation, the reduction in cancer incidence is followed by an equivalent reduction in cancer mortality. There is no other study of prophylactic irradiation to help us here, but it is possible that, as is the cases of invasive cancer and DCIS, we can prevent in-breast second events without preventing death from breast cancer (7). Further research is essential to distinguish between these two possibilities.

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Footnote

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