

The patient articulated her motivations for asking about risk reducing breast surgery as wanting to stay free from cancer for as long as possible. She was already familiar with information about ovarian cancer prognosis in general and her own excellent response to treatment from appointments with her treating medical oncologist.

After Ovarian Cancer diagnosis, what is the Breast Cancer risk in BRCA1/BRCA2 carriers?

A small number of studies have indicated that breast cancer risk is lower in BRCA1/BRCA2 mutation carriers after an ovarian cancer diagnosis, compared to unaffected mutation carriers. (*Domchek et al, 2013; Gangi et al, 2014; McGee et al, 2017; Vencken et al, 2017*)

Domchek et al (2013) studied 164 BRCA1/BRCA2 mutation carriers with epithelial ovarian cancer to assess the metachronous breast cancer risk. Among the 164 participants, 18 breast cancers were diagnosed, but no breast cancer related deaths occurred. Based on their 5 and 10 year figures for breast cancer free survival and overall survival after ovarian cancer, the authors suggest non-surgical management of breast cancer risk in women with a BRCA1/BRCA2 associated ovarian cancer.

Similar studies and results were published by *Gangi et al, 2014; McGee et al, 2017; Vencken et al, 2017*.

Germline BRCA1/BRCA2 mutations and Ovarian Cancer treatment Outcomes:

Alsop et al, 2012 studied 1001 women with epithelial ovarian cancer. The studies found that 14.1% women carried a germline mutation in BRCA1 and BRCA2. The mutation carriers were more often diagnosed at an advanced stage of disease, but also had better treatment outcomes; after adjustment for age, stage and extent of surgical resection, BRCA1 and BRCA2 mutation carriers had improved 5 year progression free survival and overall survival. The best 5 year progression-free survival of approximately 50% was observed in women with a germline BRCA1 mutation with no residual tumor after surgery.

However, *Yang et al, 2011*; produced conflicting results, thus indicating no advantage in 5 year overall survival in BRCA1 carriers.