UT Southwestern Harold C. Simmons Comprehensive Cancer Center | NCI Designated Comprehensive Cancer Center

RAD51C Mutations

What you should know about *RAD51C* mutations

Individuals with a *RAD51C* mutation have an increased risk to develop ovarian cancer, and possibly female breast cancer. There is limited information regarding the lifetime cancer risks for individuals with a *RAD51C* mutation.

Cancer risks associated with a *RAD51C* mutation

- Females with a *RAD51C* mutation have an increased risk to develop ovarian cancer. The specific lifetime risk for ovarian cancer is estimated to be between 5-9% compared to the general population risk of 1.5%.
- A *RAD51C* mutation may be associated with an increased risk to develop female breast cancer, although information is limited at this time.
- Rarely, children inherit a *RAD51C* mutation from both parents. Children with two *RAD51C* mutations have Fanconi Anemia, which causes physical abnormalities, childhood leukemia and other cancers.

Risks to family members

Mutations in the RAD51C gene are inherited in an autosomal dominant manner. This means that children, brothers, sisters, and parents of individuals with a RAD51C mutation have a 1 in 2 (50%) chance of having the mutation as well. Individuals with a RAD51C mutation may develop one cancer, more than one cancer, or none at all. Additionally, individuals with two RAD51C mutations (one from each parent) have Fanconi Anemia.

Managing cancer risks

The following surveillance is recommended by the National Comprehensive Cancer Network (NCCN v2.2020):

- Consideration of risk reducing salpingo-oophorectomy (RRSO) for women with a *RAD51C* mutation at age 45-50 (or earlier based on a family history of early onset ovarian cancer).
- Current guidelines suggest that there is insufficient evidence for breast cancer interventions based on a *RAD51C* mutation alone; an individual's personal and family history should be considered in developing an appropriate screening plan.

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