Highlights from the Presentation by David Euhus, MD at the 6th Annual DFW Hereditary Breast and Ovarian Cancer Conference

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The 6th Annual DFW Hereditary Breast and Ovarian Cancer Conference was recently held at the Cancer Support Community Center in Dallas. We are happy to report that about 80 BRCA mutation carriers from the DFW area participated! Several presentations concerning recent advancements in the prevention and treatment of patients with *BRCA1* and *BRCA2* gene mutations were given. I wanted to share with you some highlights of the presentation given by David Euhus, MD, who specializes in breast cancer risk management and prevention.

As you know, at least half of all women with a *BRCA* mutation develop cancer. However, the reasons why some women with *BRCA* mutations develop cancer and why others do not are still being clarified. Dr. Euhus summarized several recent findings about breast cancer risk factors among *BRCA* mutation positive patients.

There are several established reproductive factors that influence breast cancer risk in the general population. These are several updates about reproductive risk factors specific to individuals who have BRCA mutations:

- Research by Gronwald and colleagues suggests that women who begin their periods after age 14 may reduce their breast cancer risk by 54% among *BRCA1* mutation carriers.[5]
- Whereas number of live births and breast cancer risk is generally inversely correlated, research suggests giving birth *increases* lifetime breast cancer risk among *BRCA2* mutation carriers.[3]
- Generally, giving birth at a younger age reduces breast cancer risk. However, if a women has a *BRCA* mutation, the age at which she first gives birth does not appear to influence her lifetime breast cancer risk.[6]
- Breastfeeding has been found to somewhat decrease the risk the of breast cancer in the general population. Among *BRCA1* mutation carriers, breastfeeding for one year may reduce the risk by 32%. However there does not appear to be an association between breast cancer risk and breastfeeding among individuals with *BRCA2* gene mutations.[7]

Other breast cancer risk factors among *BRCA* mutation include the following:

- Taking hormonal replacement therapy with estrogen and progestin significantly increases breast cancer risk, but Eisen and colleagues did not find this association among *BRCA1* mutation carriers.[4]
- A smaller study (n=80) among French-Canadians found consumption of excess calories and weight gain in adulthood was positively associated with increased breast cancer risk among *BRCA* carriers.[8]
- No association between BMI, smoking, and physical activity and breast cancer risk has been found among *BRCA* mutation carriers.[8]

We also know that the presence of other gene changes in addition to *BRCA* mutations can help to either raise or lower the risk of breast cancer. Among *BRCA* mutation carriers, the presence of other specific

gene changes can increase a person's breast cancer risk to as high as 96%, or lower it down to 42%.[2] Clinical testing is not yet available for these gene changes, but may be in the near future.

Eventually, we will likely be able to give cancer risk estimates specific to the exact gene mutation a patient has. For example, it was recently discovered that the mutation *BRCA2* 6174delT which is more common among Ashkenazi Jewish individuals, confers lower risks for breast cancer than the other two common mutations (*BRCA1* 185delAG and 5382insC).[1] Researchers have also found that knowing the youngest age of breast cancer diagnosis in a family can help to determine at what age other family members will be diagnosed, particularly for *BRCA2* mutation carriers.[9]

Most of what we know about risk factors for breast cancer among carriers of BRCA mutations comes from large studies. Steven Narod, MD is a researcher with a special interest in BRCA mutations. His team at the Women's College Research Institute and the University of Toronto has contributed significantly to the findings above. They collected data from more than 12,000 *BRCA* mutation carriers from 62 different centers across 7 countries. His current study, like his many previous studies, attempts to further clarify additional cancer risk factors among patients with *BRCA* mutations. Many international women recently found to have BRCA mutations have already been enrolled in this study. Participation includes completion of a 20-minute detailed questionnaire. A shorter version is sent out every two years. UT Southwestern's goal is to have 100 patients enroll and complete the baseline questionnaire, and we have nearly met the goal with 82 questionnaires completed! Dr. Euhus stressed the importance of patient participation in this study and other like it.

Researchers are constantly looking to clarify risk factors for cancer among gene mutation carriers and the general population. Much has been discovered, but further large scale studies are needed. Fortunately, patients continue to benefit from the information gleaned from these large studies which help to make to make conferences like the Annual DFW Hereditary Breast and Ovarian Cancer Conference possible. For this particular conference, we encourage our patients to attend by re-contacting all of our *BRCA* mutation positive patients and sending them fliers each year. Excellent translational services are provided for our Spanish speakers. In addition to informational lectures, patients also benefit from a breast reconstruction 'show and tell' and have the opportunity to ask questions to others with *BRCA* mutations about their experiences. Hopefully, as patients continue to benefit from conferences such as these, they will also continue to participate in research and contribute to the knowledge base.

References:

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