Fertility Preservation: An Option for Women With Cancer?

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Many women of childbearing age are diagnosed with cancer in the United States each year. Improved survival rates can give many time to still have their own families if they choose. Although cancer treatments can dramatically increase survivorship, they also can negatively affect future fertility. Women newly diagnosed with cancer may not be aware of the possible damage to their future fertility as their main concern is survival. Women who may have their fertility compromised by cytotoxic treatments should be counseled and referred to reproductive specialists to explore their options. Although receiving a diagnosis of cancer is overwhelming, fertility counseling should be initiated as early as possible so that sufficient time exists to preserve fertility before ovarian damage occurs. Many fertility preservation options, including egg, embryo, and ovarian tissue freezing, can be done in a short period of time so as not to delay the start of cancer treatment. To educate and support women with cancer of childbearing age, oncology nurses should be aware of fertility preservation options and work closely with infertility nurses.

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M.B. was a 35-year-old woman initially diagnosed with right breast cancer in April 2009. During a routine self-breast examination, M.B. palpated a small lump and contacted her gynecologist for evaluation. Based on M.B.'s age and lack of family history for breast cancer, M.B. and her gynecologist were optimistic that the lump was benign. A digital mammogram, ultrasound, and a subsequent magnetic resonance image confirmed that the lump looked highly suspicious. A core biopsy revealed invasive ductal carcinoma and M.B. underwent a right lumpectomy and sentinel lymph node biopsy. The pathology report indicated a 2.4 cm poorly differentiated (grade 3) tumor with ductal and lobular features, no lymphovascular invasion identified, and right sentinel lymph nodes negative for malignancy. Receptor status analysis showed the tumor was estrogen-receptor positive and progesterone-receptor positive. HER2-neu was 2+ by fluorescent in situ hybridization testing. Subsequent BRCA1 and BRCA2 testing were negative.

The recommended course of treatment by M.B.'s oncology team was four rounds of taxoetere and carboplatin plus one year of herceptin treatment followed by five years of tamoxifen. The potential damaging effects of chemotherapy on M.B.'s fertility were an immediate concern to M.B. and her fiancé, who were planning a June 2009 wedding and children in the future. M.B. was counseled that her planned regimen would cause damage to her oocytes (eggs) and accelerate the aging of her ovaries, possibly resulting in premature menopause. These effects would significantly diminish her chances of becoming pregnant with her own eggs and having a child in the future. During the five years of tamoxifen therapy, M.B. would be advised not to attempt pregnancy because tamoxifen is a pregnancy Category D drug.

Based on M.B.'s desire to have children in the future and the potential damaging effects of the chemotherapy on her fertility, M.B.'s oncology team referred her to a reproductive endocrinologist to explore her options for fertility preservation before her cytotoxic treatment was initiated. During consultation with the reproductive specialist, M.B. was evaluated and informed about reproductive biology and the normal process of ovarian aging.

Patient Assessment

Ovarian reserve is the term used to describe the ability of a woman's ovaries to produce eggs that will ultimately produce a baby. To access her ovarian reserve, M.B. had an ultrasound to see the number of follicles on each ovary. Her hormones levels, including estradiol, follicle-stimulating hormone, and antimullerian hormone, also were measured. The tests helped to determine the dose of hormones and fertility treatment protocol M.B. would need to stimulate her ovaries to achieve the maximum number of quality eggs. Because of the planned oncology treatment schedule of chemotherapy followed by five years of tamoxifen, M.B. would not be able to attempt pregnancy until she was older than age 40; however, pregnancy and live birth rates for women older than age 40 are lower than for younger women (Ventura, Abma, Mosher, & Henshaw, 2009). In addition, M.B.'s ovaries would be damaged by the chemotherapy regimen, thereby causing her ovaries to act

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