Onco-Contraception for Women Diagnosed with Breast Cancer

In Brief

While contraceptive counseling during breast cancer diagnosis and treatment should be an integral part of disease management, it is often overlooked by clinicians. A survey regarding reproductive health and contraception was administered to women diagnosed with breast cancer between ages 18 to 50 attending the 2011 Annual Conference for Young Women Affected by Breast Cancer. The primary objective of this study was to assess patient reporting of contraceptive counseling during breast cancer treatment and barriers to providing this type of counseling. The study's secondary objective: to identify which providers offered counseling and which contraceptive methods were recommended. Of the 111 women surveyed, only 51.4 percent indicated they had discussed contraception with a healthcare provider. This gap in the provision of onco-contraception left nearly half of surveyed women at risk of unintended pregnancy, indicating a need for contraceptive training among oncologists.

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Why Onco-Contraception?

There are nearly 3 million female breast cancer survivors in the United States,[1] and breast cancer is the most common cancer diagnosed in women who are of reproductive age.[2] In 2010 approximately 206,000 women in the U.S. were newly-diagnosed with breast cancer; 20 percent of these women were of childbearing age.[2] While younger women diagnosed with breast cancer may have more aggressive forms of cancer, five-year relative survival rates generally are 99 percent for cancer diagnosed at local stage, 84 percent for regional disease, and 23 percent for distant stage disease.[3] In this context, the quality of life (QOL) measures for breast cancer survivors are of paramount importance.

Breast cancer survivors face several reproductive health challenges associated with disease and cancer treatment. While many patients are interested in fertility preservation and future childbearing, contraception at critical points in early diagnosis and treatment is important for all patients. Treatments such as radiation, chemotherapy, and adjuvant treatment may harm a developing pregnancy and are rated as Category D or X. Category X drugs are contraindicated in women who are pregnant or may become pregnant, while Category D drugs have demonstrated risk to the fetus, but their potential benefits outweigh the risks of fetal complications.[4] Despite the contraindication and risk, one study estimated that six percent of pregnancies occur in women on Category D or X medications.[5]

The U.S. Centers for Disease Control and Prevention (CDC) recommends that women with breast cancer avoid unintended pregnancy, as it may increase risk of adverse health events.[6] Further, deferment of pregnancy for hormonally-mediated cancers is recommended for two to five years after diagnosis due to higher rates of cancer recurrence.[7] Additionally, adjuvant therapies, such as tamoxifen, have recommended duration of use of up to 10 years,[8] during which time pregnancy should be avoided.[9] Despite these recommendations, little attention is placed on the provision of contraception counseling in women diagnosed with breast cancer.[10,11] Clinicians who do not initiate this conversation with their breast cancer patients leave these women at risk for unintended pregnancy during this critical time.

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A discussion between a newly-diagnosed breast cancer patient and her cancer care provider regarding onco-contraception should be an integral part of initial management. To date, a paucity of literature exists describing the degree to which providers discuss contraception with their cancer patients.

Survey Methods

In 2011 the Cook County Health and Hospitals System Institutional Review Board (IRB) reviewed the survey and gave it exemption status. The survey was then administered at a Teva Pharmaceutical booth in the exhibit hall of the Annual Conference for Young Women Affected by Breast Cancer held February 25-27, 2011, in Orlando, Fla. Women were eligible to take the survey if they were diagnosed with breast cancer between 18 to 50 years of age. The five-item questionnaire assessed:

1. Age and date of diagnosis and current treatment status
2. Future childbearing desires at time of diagnosis
3. Presence of contraception counseling
4. The type of healthcare professional providing counseling (if applicable)
5. Type of contraceptive recommended.

Type of healthcare professional and type of contraceptive were assessed as multiple selection questions. Response options for type of healthcare professional included oncologist, breast surgeon, obstetrician/gynecologist, primary care provider, nurse practitioner, physician assistant, or other. Response options for contraceptive method included intrauterine device, oral contraceptive pill, barrier method, and other. If "other" was selected, respondents were asked to specify type of provider or contraceptive.

Statistical analyses were performed using SAS 9.2. Descriptive statistics were used to describe this sample population. Data was stratified by those who received contraceptive counseling and those who did not. T-tests and chi-square tests compared the sample characteristics by receipt of contraceptive counseling.

> Compared to women who were interested in future childbearing, women who had completed childbearing at the time of diagnosis were 36 percent less likely to report receipt of contraceptive counseling.

Table 1. Year and Age of Diagnosis, Future Childbearing Interest, and Treatment Status by Receipt of Contraceptive Counseling*

	RECEIVED CONTRACEPTIVE COUNSELING			
	TOTAL (n=111)	YES (n=57)	NO (n=54)	p VALUE
YEAR OF DIAGNOSIS				0.046
Median	2009	2009	2008	
Interquartile Range	2007 to 2010	2008 to 2010	2006 to 2009	
AGE AT DIAGNOSIS				0.029
Mean (SD)	35.1 (5.8)	34.0 (6.0)	36.4 (5.2)	
Range	23 to 46	23 to 46	25 to 46	
COMPLETED CHILDBEARING				0.018
Yes	53	21 (39.6)	32 (60.4)	
No	58	36 (62.1)	22 (37.9)	
CURRENTLY IN TREATMENT				0.127
Yes	43	26 (60.5)	17 (39.5)	
No	68	31 (45.6)	37 (54.4)	

*Values are n (%) unless otherwise indicated. P values were derived from Wilcoxon rank sum, chi-square, and t-tests. Nine individuals were missing values for year of diagnosis; three individuals were missing values for age.

Table 2. Bivariate Prevalence Ratios of Receipt of Contraceptive Counseling by Year and Age of Diagnosis, Future Childbearing Interest, and Treatment Status*

	PREVALENCE RATIO	95% CI	p VALUE
YEAR OF DIAGNOSIS			
5 year increase in age	1.49	0.97–2.27	0.069
AGE AT DIAGNOSIS			
5 year increase in age	0.82	0.70–0.96	0.015
CHILDBEARING COMPLETE			
Yes	0.64	0.43–0.94	0.024
No	ref	—	—
CURRENTLY IN TREATMENT			
Yes	1.33	0.93–1.89	0.119
No	ref	—	—

*Measures of association were derived from bivariate log-binomial modeling. Nine individuals were missing values for year of diagnosis; three individuals were missing values for age.

Factors of interest were year and age of diagnosis, as well as completion of childbearing and treatment status. Prevalence ratios were calculated to assess differences between those who did and did not receive contraceptive counseling. Chi-square tests compared the distribution of provider type engaging in contraceptive counseling and contraceptive method recommended for future childbearing interest.

Survey Results

Of the 119 women surveyed, 8 were excluded for having undergone previous sterilization prior to diagnosis of cancer. The remaining 111 surveys were included in the analysis. Of the women included in the study, mean age at diagnosis was 35.1 years. Median year of diagnosis was 2009—within 2 years of survey administration—and 48 percent indicated they had completed childbearing at that time. At the time of survey administration, 39 percent of women were undergoing treatment. Overall, 49 percent of women reported that a healthcare provider discussed contraception with them prior to or during their cancer treatment.

Median year of diagnosis was more recent among women who received contraceptive counseling (2009) than in those who did not (2008). Younger age was also associated with reported receipt of contraceptive counseling. Mean age of women who received contraceptive counseling was 34 years compared to 36.4 years in those who did not receive counseling. Additionally, of the women who had completed childbearing, fewer reported receiving contraceptive counseling (40 percent) compared to those who had not completed childbearing (62 percent). Treatment status was not associated with receipt of counseling. See Table 1, left, for full survey results.

Bivariate prevalence ratios indicated that increased age and completion of childbearing at time of diagnosis were significantly associated with a decline in provision of contraceptive counseling (Table 2, above). A 5-year increase in age was associated with an 18 percent decrease in likelihood of receiving contraceptive counseling. Compared to women who were interested in future childbearing, women who had completed childbearing at the time of diagnosis were 36 percent less likely to report receipt of contraceptive counseling. A non-significant increase in contraceptive counseling was noted in those diagnosed more recently and in those receiving treatment at the time of survey administration.

Among women who indicated receipt of contraceptive counseling, the type of provider who engaged in counseling is listed in Table 3, page 40. Of the 56 women who specified the type of provider who discussed contraception, 73 percent indicated that their oncologists engaged in counseling and 59 percent indicated they discussed contraception with their obstetrician/gynecologist. Breast surgeons were the third most frequently mentioned provider type; 16 percent of women reported receiving

counseling from a breast surgeon. Less than 10 percent of patients who received contraceptive counseling referenced a primary care provider, nurse practitioner, or physician assistant as the provider who engaged in counseling. Of those who had completed childbearing at the time of diagnosis, 76 percent indicated an obstetrician/gynecologist provided contraceptive counseling compared to 49 percent of women who had not completed childbearing. An important, although non-statistically significant finding, was that among women who had completed childbearing, 33 percent reported an obstetrician/gynecologist was the only source of counseling compared to 17 percent of women who had not completed childbearing. Otherwise, type of provider engaging in contraceptive counseling did not differ by future childbearing interest.

Recommended methods of contraception for those who indicated having received counseling are also listed in Table 3, below. Seven women did not specify which methods of contraception were recommended. Among the remaining 50 women, barrier methods were most frequently recommended at 60 percent. Forty-six percent of participants who received counseling reported that intrauterine devices were recommended. Only 4 percent of women indicated their provider recommended oral contraceptive pills. Eighteen percent of counseled women indicated that "other" methods of contraception were recommended. Four of these women specified permanent sterilization as an "other" method of contraception. Although not statistically significant, women who had completed childbearing indicated that permanent sterilization had been recommended more frequently, 13 percent compared to 6 percent of women who had not completed childbearing.

Survey Takeaways

The ramifications of an unintended pregnancy may be more complicated for women with cancer; yet, only half of the patients in this study reported having received contraceptive counseling during this critical time. These study findings are consistent with the literature—where 67 to 85 percent of women diagnosed with cancer did not recall discussing pregnancy risk or contraception with their providers.[10, 12] Despite the fact that pregnancy is contraindicated in women with breast cancer,[6] our study demonstrates

Table 3. Reported Type of Provider Who Engaged in Contraceptive Counseling and Recommended Contraceptive Methods by Childbearing Completion Status*

	COMPLETED CHILDBEARING			
	TOTAL	YES	NO	p VALUE
TYPE OF PROVIDER				
Oncologist	41 (73.2)	14 (66.7)	27 (77.1)	0.391
Breast Surgeon	9 (16.1)	3 (14.3)	6 (17.1)	>0.999
Obstetrician/Gynecologist	33 (58.9)	16 (76.2)	17 (48.6)	0.042
Primary Care Provider	5 (8.9)	2 (9.5)	3 (8.6)	>0.999
Nurse Practitioner	4 (7.1)	1 (4.8)	3 (8.6)	>0.999
Physician Assistant	1 (1.8)	0 (0)	1 (2.9)	>0.999
Other Healthcare Provider	2 (3.6)	0 (0)	2 (5.7)	0.523
CONTRACEPTIVE METHOD				
Intrauterine Device	23 (46.0)	6 (37.5)	17 (50.0)	0.408
Oral Contraceptive Pill	2 (4.0)	1 (6.3)	1 (2.9)	0.542
Barrier Methods	30 (60.0)	10 (62.5)	20 (58.8)	0.805
Other	9 (18.0)	4 (25.0)	5 (14.7)	0.442

*Values are n (%). P values were derived from chi-square tests. Responses are not mutually exclusive, therefore percentages add to more than 100%. One individual did not specify type of provider; seven individuals did not specify type of contraception recommended.

that many clinicians have not implemented intervention to prevent pregnancy, which may negatively impact quality of life. Both prognosis and QOL issues influence oncology treatment decisions.[13, 14] QOL issues, such as psychological health, social avoidance, physical pain, fatigue, and sexual and reproductive health, should be addressed by the oncology team or through referral to other specialists.[15] Referral to a gynecologist or family medicine provider may be necessary for the management of reproductive health issues; however, the oncology team must initiate this conversation. Appropriate contraceptive care or referral should be provided expeditiously, as pregnancy soon after cancer diagnosis is not uncommon.[13, 16]

Factors associated with receipt of contraceptive counseling illustrate counterintuitive findings. We anticipated that women indicating completion of childbearing would be offered birth control more often than those interested in future childbearing. However, completion of childbearing and older age were found to significantly reduce the likelihood of counseling. Women who had completed childbearing also most frequently reported discussing contraception with an obstetrician/gynecologist. This finding may indicate that women's health providers are largely responsible for what small percentage of counseling is reported among women who had completed childbearing. Oncologists may be discussing contraception with younger patients interested in future childbearing as they may already be discussing fertility preservation with these patients.

Methods of contraception recommended did not differ significantly by future childbearing interest. There was an understandable trend in which women who had completed childbearing were more likely to report discussing sterilization as a form of permanent contraception. However, of those who indicated contraceptive counseling with a provider, six percent of women interested in future childbearing discussed permanent sterilization. Clinicians should recommend other highly effective, nonpermanent methods of contraception to these women to ensure that individual reproductive health goals may still be achieved and QOL is not negatively impacted.

Overall, the survey found that clinicians most frequently recommended barrier methods—the least effective methods of contraception. The World Health Organization classifies contraception into effectiveness categories with tier 1 methods having the highest efficacy rates and tier 4 having the lowest efficacy rates.[17] Tier 1 methods have typical-use failure rates of less than 1 percent and include male and female sterilization along with long-acting reversible options, intrauterine device and subdermal implant.[6,17] High typical-use failure rates of lower tier methods have been attributed to user compliance-based issues.[18] User compliance and subsequent unintended pregnancy have been shown to be problematic among both cancer and non-cancer patients.[5, 19-21] Tier 2 methods have typical-use failure rates of 3 to 8 percent and include injectables, pill, transdermal patch, and vaginal ring. Tier 3 methods have typical-use failure rates of 15 to 32 percent and include male/female condoms, sponge, and diaphragm. Tier 4 methods have typical-use failure rates of 27 to 29 percent and include withdrawal and spermicide.[6, 17] By recommending less effective, user-dependent methods of contraception, women who receive contraceptive counseling may still be at risk for unintended pregnancy.

According to the Society of Family Planning, the copper T intrauterine device is the optimal form of contraception for women with breast cancer due to its high effectiveness and hormone-free content.

In addition to issues with user compliance, providers must also consider the hormonal content of recommended contraceptive methods. Hormonal-based contraceptives (i.e., oral contraceptive pills, patch, ring, shot, and levonorgestrel intrauterine device) are contraindicated in women diagnosed with breast cancer.[6] However, this survey found that 4 percent of patients who discussed contraception with a provider received a recommendation of oral contraceptive pills. According to the Society of Family Planning, the copper T intrauterine device is the optimal form of contraception for women with breast cancer due to its high effectiveness and hormone-free content.[22] Two types of intrauterine contraception were FDA-approved at the time this survey was administered, the copper T and the levonorgestrel intrauterine device. While intrauterine contraception was recommended to 46 percent of survey participants, rates of counseling specifically for the copper T intrauterine device were unknown.

Other survey limitations include potential for participant selection and recall biases. The cohort of women surveyed may not fully represent the general public. We believe the women attending this type of conference may be more proactive in their cancer care and thus be more likely to have discussed contraception with their provider. These findings may therefore overestimate the proportion of women who receive contraceptive counseling and underestimate the scope of the issue. Additionally, study participants were diagnosed with cancer at a median of two years prior to survey administration, which could have impacted patient ability to recall conversations about contraception at initial diagnosis.

Still, our survey findings indicate that nearly half of all women diagnosed with breast cancer are not receiving contraceptive

counseling, leaving them at risk for unintended pregnancy. Recommendations of less effective and even contraindicated methods of contraception may further exacerbate this risk. These findings suggest that targeted onco-contraceptive training among oncologists and cancer care providers is warranted to enhance provision of appropriate counseling and referral. Establishing referral networks to obstetrician/gynecologists may facilitate contraceptive education, as well as the implementation of appropriate and effective contraceptive methods. OI

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