Original research article

Contraception after cancer treatment: describing methods, counseling, and unintended pregnancy risk[☆,☆☆]

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Abstract

Objective: The objective was to describe contraceptive methods utilized by young female cancer survivors and determine whether pretreatment fertility counseling decreases unintended pregnancy risk.

Methods: One thousand and forty-one nongynecologic cancer survivors between18 and 40 years of age responded to a survey of reproductive health, contraceptive methods utilized and history of fertility counseling before cancer treatment. Subjects who had resumed menstrual bleeding following treatment and had not undergone surgical sterilization were defined at risk of unintended pregnancy if they reported unprotected vaginal intercourse in the prior month but did not desire conception. Statistical methods utilized were Student's t test and χ^2.

Results: Overall, 918 women (88%) received treatment with potential to affect fertility (chemotherapy, radiation or sterilizing surgery). Of 476 women younger than 40 years old who still had menses, 58% did not want to conceive; of these 275 women, 21% reported unprotected intercourse in the prior month and were defined at risk of unintended pregnancy. This compares to the 7.3% risk of unintended pregnancy reported by the National Center for Health Statistics. Increasing age was associated with greater risk of unintended pregnancy (odds ratio 1.07, p=.006). The following contraceptive methods were reported: barrier (25.5%), hormonal (24.5%), tubal ligation (21.3%) vasectomy (17.5%), intrauterine device (7.2%) and other (4.0%). Sixty-seven percent of women received pretreatment fertility counseling. Counseling prior to treatment did not decrease risk of unintended pregnancy (p=.93).

Conclusions: Sexually active cancer survivors are at threefold increased risk of unintended pregnancy compared to the US population. Contraceptive counseling in this high-risk population is recommended posttreatment.

Implications: Sexually active cancer survivors are at considerable risk of unintended pregnancy. Patient report of pretreatment counseling regarding fertility was not associated with a decline in risk of unintended pregnancy, highlighting the importance of clear recommendations regarding content and timing of counseling.

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1. Introduction

An estimated 805,500 women will be diagnosed with cancer in 2013 [1]. Nine percent of cases occur in women under 45 years of age [2]. However, with advances in diagnostic tools and treatment, survivorship has improved. Eighty percent of women diagnosed with cancer under the age of 50 will survive at least 5 years [3]. In these women, reproductive health and fertility concerns are of great importance.

Many factors affect fertility in women who have undergone treatment for cancer, including age at diagnosis, tumor site and treatment type [4]. Chemotherapy consisting of alkylating agents and radiation below the diaphragm impact posttreatment fertility [5,6]. In the past, the presence or absence of menses was the primary determinant of posttreatment reproductive compromise. However, there is evidence that a significant proportion of women can experience

temporary amenorrhea and regain reproductive capacity [6,7]. Furthermore, the onset and duration of posttreatment amenorrhea are difficult to predict [7,8].

Cytotoxic drugs and radiation therapy have teratogenic and mutagenic properties, leading to recommendations that pregnancy be delayed during treatment and for a variable interval post treatment completion [9]. Concerns surrounding the impact of recent treatment on the health of a pregnancy, compounded by apprehension over the impact of pregnancy on the course of a patient's cancer, lead some patients to elect for termination in the setting of unintended pregnancy. One article demonstrated that female survivors of childhood cancer were twice as likely to undergo a therapeutic abortion compared to age-matched controls [10]. Therefore, female cancer patients need education regarding not only fertility posttreatment but also the risk of unintended pregnancy and contraceptive options [4].

Although methods of fertility preservation prior to cancer treatment and posttreatment reproductive outcomes have been described in the literature, little research exists on the risk of unintended pregnancy in this population. This study describes contraception utilization after treatment, including methods of contraception and how this cohort compares to the US population. Furthermore, we tested the effectiveness of counseling by oncologists by stratifying risk of unintended pregnancy by status of pretreatment counseling.

2. Methods

We performed a retrospective survey using the California Cancer Registry (CCR). Data presented are a subset of data from a larger study of fertility and cancer treatment. All study procedures were approved by University of California, San Francisco (UCSF), Committee on Human Research.

2.1. Subjects

A computer-generated randomizer was used to sample reproductive-age women from the CCR that had nongynecologic cancers treated with chemotherapy. Patients were 18–40 years of age at diagnosis between 1993 and 2007. Among 6709 patients initially selected, 4147 were excluded because of outdated contact information. Letters were sent to the primary physicians of each of the remaining women before we attempted to reach the patients. Women were excluded if their physician thought that participation in the study would cause psychological burden (30 patients). After exclusions, 2532 patients were contacted for participation.

2.2. Survey

The survey was created at UCSF as part of a larger study addressing fertility and cancer treatment. It was assessed for readability and content validity by two independent experts in survey methodology. The survey included 174 multiple-choice questions divided into 8 sections. Topics addressed included demographic information, past obstetric and gynecologic history, cancer type and treatment, fertility preservation actions, current contraceptive use and posttreatment quality of life.

2.3. Recruitment

Women were contacted between January and September of 2010. A contact letter was sent to potential participants explaining the purpose of the survey and the source of the individual's personal contact information (the CCR), and allowing women the opportunity to opt out of further contact. After 1 week, a second mailing was sent that included the written survey, a link to the survey online, a consent form, a return envelope and an optional refusal postcard. Women were asked to complete and return a written consent form by mail and to return the survey by mail or complete it online. Women who did not reply within 3 weeks received a reminder telephone call. Those who did not reply within 2 weeks of the reminder call were sent a reminder postcard with a link to the electronic survey.

2.4. Data analysis

Survey data were merged with CCR data with a unique, anonymous identifier code. Statistical analyses were performed using STATA Version 12 (College Station, TX, USA). χ^2 and Fisher's Exact Tests were used to stratify risk of unintended pregnancy by categorical variables. Student's t test was used to evaluate difference in means between groups. Logistic regression was used to determine the association between increased risk of unintended pregnancy and various clinical predictors. Statistical significance was defined by two-sided p values less than .05.

3. Results

3.1. Patient sample

Of the 2532 women who were contacted, 1041 (41%) completed the survey (47% online, 53% on paper). There was no difference in age at diagnosis, socioeconomic status or stage of disease between paper and online respondents. The average time to complete the survey was 26 min. Nine hundred and eighteen respondents (88%) reported treatment with the potential to compromise fertility. Subjects who reported cessation of menses posttreatment or indicated that they could not remember their menstrual pattern were excluded. Subjects who reported sterilizing surgery, including tubal ligation, hysterectomy or bilateral oophorectomy, either pre- or posttreatment were also excluded (18 pretreatment, 35 posttreatment). After exclusions, 476 subjects were included in analysis.

Table 1 compares the 1041 responders and 1491 nonresponders based on disease and demographic data in the cancer registry. Patients who completed the survey were 1.4 years younger at diagnosis than those who did not (p<.0001)