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ORIGINAL RESEARCH ARTICLE

Fertility Issues in Cancer Patients: An Observational Survey-Based Study

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ABSTRACT

Background: Advances in cancer therapy have increased survival rates, particularly among adolescents and young adults. However, cancer treatments such as chemotherapy, radiotherapy, and surgery can significantly impair fertility, posing long-term psychosocial and reproductive challenges. Despite clinical guidelines recommending fertility counseling, awareness and uptake of fertility preservation methods remain limited. This study aimed to assess awareness, attitudes, and practices regarding fertility preservation among cancer patients of reproductive age using a structured, self-validated questionnaire.

Material and Methods: A cross-sectional observational study was conducted at a tertiary care cancer center over a six-month period. Patients aged 15 to 45 years undergoing or recently completing cancer treatment were recruited. Data were collected using a self-validated questionnaire that assessed knowledge of fertility risks, prior counseling, preservation actions taken, and the psychological impact. Descriptive and inferential statistics were used for analysis.

Results: A total of 44 patients completed the questionnaire. Only 9% were aware that cancer treatments could impair fertility, and just 5% reported receiving counseling prior to treatment. Fertility preservation was pursued by a minority of 2%, with sperm cryopreservation being the most commonly utilized method. Female patients were significantly less likely to be informed or offered preservation options. Emotional distress related to potential infertility was reported by over half of the participants. Barriers identified included lack of awareness, financial constraints, urgency of treatment, and limited access to services.

Conclusion: Fertility preservation remains an underutilized aspect of cancer care. There is a critical need to enhance patient education, improve provider training, and implement structured fertility counseling protocols at an early stage in the cancer care pathway.

Keywords: Fertility preservation, Cancer patients, Oncofertility, Chemotherapy, Reproductive health, Self-validated questionnaire, Fertility counseling.

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INTRODUCTION

Cancer treatment has significantly evolved over the past few decades, improving survival outcomes, particularly in adolescents and young adults (AYA). With increasing survivorship, attention has shifted from merely curing the disease to preserving long-term quality of life. One crucial yet often overlooked aspect is the preservation of fertility in cancer patients of reproductive age. Fertility loss can have lasting psychological and emotional consequences, affecting self-esteem, intimate relationships, and future family planning.[1,2]

Chemotherapy, especially alkylating agents like cyclophosphamide, and radiotherapy targeting the pelvic area are known for their gonadotoxic effects, often resulting in temporary or permanent infertility.[3,4] In women, these treatments may lead to premature ovarian failure, while in men, spermatogenesis can be permanently disrupted. Surgical procedures involving reproductive organs can also contribute to irreversible fertility loss. Although assisted reproductive technologies such as cryopreservation of gametes, embryos, and ovarian/testicular tissue are now available, their uptake remains limited due to several barriers, including lack of awareness, insufficient counseling, cost, and urgency of treatment.[5,6]

Despite guidelines from major oncology organizations, such as the American Society of Clinical Oncology (ASCO) and the European Society of Medical Oncology (ESMO), recommending early fertility counseling, studies have shown that discussions regarding fertility are often omitted in clinical settings.[7,8] Patients may remain unaware of fertility risks and preservation options until after treatment has commenced, by which point options may be limited or unavailable.

Furthermore, fertility concerns have been associated with emotional distress, anxiety, and reduced quality of life, particularly in younger patients who have not yet started families.[9] Cultural attitudes, healthcare provider knowledge gaps, and lack of structured referral

systems also contribute to the underutilization of fertility preservation services.[10] Addressing these issues is essential to providing holistic care and improving survivorship outcomes.

This study aims to assess the level of awareness, attitudes, and practices related to fertility preservation among cancer patients of reproductive age through a structured, self-validated survey instrument, with the goal of identifying gaps and suggesting improvements for oncofertility services.

MATERIALS AND METHODS

Study Design and Setting

This was a cross-sectional observational study conducted at the Department of Radiation Oncology SRMSIMS, a tertiary care cancer hospital, over three months (1 January 2025 -31 March 2025)

Participants

The study included male and female cancer patients aged 15 to 45 years who were either currently undergoing or had recently completed cancer treatment. Patients with cognitive impairments, those who declined consent, or those outside the defined age range were excluded.

Sampling and Data Collection

Purposive sampling was used to recruit participants from oncology outpatient clinics and inpatient wards.

Survey Instrument

Data were collected using a structured, "self-validated questionnaire" developed specifically for this study. The questionnaire was designed based on existing literature and expert input from oncologists and reproductive medicine specialists. It consisted of sections on socio-demographics, cancer diagnosis and treatment, awareness of fertility risks, prior counseling, and patient attitudes toward fertility preservation.

Data Analysis

Responses were entered and analyzed using Microsoft Excel. Descriptive statistics were used for baseline characteristics. Associations between demographic variables and awareness or actions regarding fertility preservation were assessed using Chi-square tests. A *p-value* < 0.05 was considered statistically significant.

RESULTS

A total of 44 patients completed the self-validated questionnaire. The mean age of the participants was 35 years. Of the participants, 41% were female and 59% were male. The most common cancer types included head and neck cancer (68%), followed by carcinoma breast (18%).

Using the structured self-validated questionnaire, we found that only 9% of respondents were aware that cancer treatments could affect future fertility. Among these, only 5% reported receiving fertility counseling prior to treatment initiation. Male participants were significantly more likely to have been counseled about fertility risks compared to female participants ($p < 0.05$). Of those who received counseling, sperm cryopreservation was the most frequently offered option to males. In contrast, a limited number of female participants had access to or were informed about options such as oocyte or embryo cryopreservation and only (5%) of total participants reported undertaking any fertility preservation measures.

When asked about emotional responses, over half of the participants expressed distress or concern about future fertility. Reasons for not pursuing fertility preservation included lack of knowledge, cost constraints, urgency of treatment, and fear of delaying cancer therapy. These insights were clearly captured through the structured responses within the self-validated questionnaire.

DISCUSSION

Our findings highlight a significant deficiency in fertility-related awareness and counseling among cancer patients in their reproductive years. These results, obtained through a rigorously designed and self-validated survey tool, reflect trends reported in previous studies, which emphasize that fertility is often deprioritized during oncologic treatment planning.[1,2]

The low percentage of patients who received fertility counseling—especially among female patients—demonstrates the ongoing gender disparity in oncofertility care. While sperm banking is straightforward, female fertility preservation options are more complex and time-sensitive, which may partly explain the gap.[3,6] Nevertheless, all patients should have equal access to information and services, as recommended by current international guidelines.[7,8]

Psychological distress related to potential infertility was reported by a large portion of respondents, reaffirming findings from earlier studies linking fertility concerns with poorer quality of life among young survivors.[9] Institutional, financial, and time-related barriers further complicate fertility preservation efforts.[10] The self-validated questionnaire allowed for standardized, reliable data collection on these multifactorial issues.

Limitations of this study include its single-center setting and the use of self-reported data, which may

introduce reporting bias. However, the strength lies in the use of a purpose-designed, self-validated tool that ensured consistency and relevance of responses.

This study demonstrates that fertility preservation remains an under-addressed aspect of cancer care, with many patients lacking adequate information or access to preservation services—particularly women. The use of a structured, self-validated questionnaire revealed that gaps persist in awareness, counseling, and action regarding fertility protection during cancer treatment.

CONCLUSION

Fertility preservation remains an underutilized aspect of cancer care. There is a critical need to enhance patient education, improve provider training, and implement structured fertility counseling protocols at an early stage in the cancer care pathway. To improve reproductive outcomes and overall quality of life among cancer survivors, it is essential to implement structured oncofertility services, improve provider education, and enhance patient counseling at diagnosis.

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