

## Original Research Article

# TO STUDY LONG-TERM OVARIAN CANCER SURVIVORS' QUALITY OF LIFE AFTER TREATMENT

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## ABSTRACT

**Background:** Primal ovarian germ cells cause ovarian germ cell cancers. They might be benign or cancerous. Approximately 5% of malignant ovarian neoplasms are these tumors. This study examined the quality of life of long-term ovarian germ cell tumor survivors. To compare fertility-preserved and unpreserved life quality.

**Materials and Methods:** The study comprised individuals who had survived Germ cell Tumor Ovary and had undergone a minimum of 2 years of post-treatment follow-up. This study was conducted at the Department of Medical Oncology, NRI Medical College and Hospital, Mangalagiri, Andhra Pradesh, India between December 2021 to November 2022.

**Results:** Ovarian germ cell cancers primarily manifest between adolescence and early adulthood. The majority of individuals in this group are not married or are now in the process of planning their families. The majority of individuals possess a high level of education and have accumulated a significant number of years characterized by productivity and achievement. The objective of this study was to ascertain the characteristics that exhibit the strongest correlation with quality of life outcomes in individuals who have survived ovarian germ cell tumors over an extended period. Additionally, the study aimed to evaluate the influence of fertility preservation treatment on these results.

**Conclusion:** The significance of fertility preservation is once again underscored, highlighting the need for robust endeavors to sustain reproductive capacity throughout the initial surgical intervention.

**Keywords:** Ovarian germ cell cancers, quality of life, and survivors.

## INTRODUCTION

Patients with ovarian germ cell tumors have had significantly better therapy outcomes in the previous two decades. Carefully paced patients with ovarian germ cell cancers who undergo initial total resection followed by adjuvant chemotherapy have excellent survival rates. In addition, women who survive ovarian germ cell tumors are typically rather young, giving them the best chance of a long and fruitful life after treatment. Therefore, concerns about long-term survivors' quality of life are crucial.<sup>[1,2]</sup>

Cancers of the ovary's primordial germ cells are called ovarian germ cell tumors. They may be benign or cancerous. Malignant ovarian neoplasms are uncommon, making up just around 5% of all ovarian tumors. Malignant Ovarian germ cell tumors originate largely in young women between 10 and 30

years of age; they comprise 70 percent of ovarian cancers in this age group. The clinical appearance of MOGCT was extensively described in several large case series published in the 1970s and 1980s.<sup>[3,4]</sup> Teenage girls and young women are disproportionately affected by these malignancies. About 85 percent of patients present with abdominal pain and a palpable pelvic-abdominal lump. Rupture, bleeding, or torsion of the ovarian tumor typically causes sudden, severe abdominal pain similar to that of appendicitis in about 10% of patients. Some of the less frequent symptoms include an enlarged abdomen, a high body temperature, and abnormal vaginal bleeding.<sup>[5]</sup>

Isosexual precocity associated with human chorionic gonadotropin production occurs in a subset of patients. Those who have survived an ovarian germ cell tumor are a niche subset of the cancer-free

population. Ovarian germ cell tumors are uncommon in children and younger women, but most commonly affect young adults in their twenties. Germ cell tumors are rare compared to other types of cancer, and they tend to appear during the difficult teen-to-adult years. Concerns about physical functioning, body image, mood, sexuality, family, and career quickly surface as treatment begins.<sup>[6,7]</sup>

Because of the early age of the women and girls who are diagnosed with this disease and because of the high survival rates, it is important to examine the possibility of long-term physical or psychological sequelae caused by either the illness or its treatment. There is a lack of studies examining survivors' quality of life after ovarian germ cell cancer. That's why we think it's important to investigate problems with this group's quality of life.<sup>[8,9]</sup>

Many OGCT generate serum tumor markers that can help in preliminary diagnosis, therapy monitoring, and follow-up monitoring. Examples of both alpha-fetoprotein and hCG-producing tumors are the yolk sac tumor and the choriocarcinoma. Polyembryoma is less likely than embryonal cancer to produce hCG and AFP.<sup>[9]</sup> A small number of dysgerminomas produce modest amounts of hCG due to the existence of multinucleated syncytiotrophoblastic giant cells, and around one third of juvenile teratomas release AFP. Depending on the kind and extent of the tumor, mixed germ cell tumors may result in any or both of these outcomes. Dysgerminoma patients, and those with OGCT in general, may also have an increase in lactic dehydrogenase and other serum tumor markers.<sup>[10]</sup>

Imaging investigations, including pelvic sonography and computed tomography of the abdomen and pelvis, should be part of the initial evaluation of a patient suspected of having OGCT based on history and physical examination. Karyotyping is recommended if the presence of dysgenetic gonads is suspected based on clinical history and physical examination.<sup>[10,11]</sup>

The purpose of this research was to examine how ovarian germ cell tumor survivors have fared in terms of quality of life. To compare the quality of life between fertility preserved and unpreserved group. Purpose: Analyzing the success rate of pregnancies among those who were able to keep their fertility after treatment.

## MATERIAL AND METHODS

The study comprised individuals who had survived Germ cell Tumor Ovary and had undergone a minimum of 2 years of post-treatment follow-up. This study was conducted at the Department of Medical Oncology, NRI Medical College and Hospital, Mangalagiri, Andhra Pradesh, India between December 2021 to November 2022.

### Inclusion Criteria

- Early or advanced malignant ovarian germ cell tumor pathology.

- Continuous disease-free survivors with a minimum two-year follow-up at the time of the interview.

### Exclusion Criteria

- Patients relapsed and receiving salvage therapy.
- Patients on palliative therapy.

### Statistical Analysis

The scoring of the QLQ-C30 and OV 28 instruments was conducted in accordance with the procedures outlined in the EORTC manual. The data was analyzed using SPSS version 13, employing both descriptive and inferential statistics.

## RESULTS

A cohort of 200 individuals who had undergone treatment for ovarian germ cell tumor between the years 1995 and 2005 were contacted via telephone or mail in order to conduct a quality of life assessment at an outpatient clinic. A total of 10 individuals who had successfully completed a minimum of two years of follow-up were present and provided their informed consent before being administered the questionnaire.

The average age at the time of diagnosis was found to be 20.16 years, with 44% of the patients falling between the age ranges of 21-30 years. The average age at the time of conducting the quality of life analysis was 27.46 years. [Table 1]

Out of the total number of survivors, 10 individuals were actively engaged in the pursuit of their undergraduate degrees or had successfully completed them, while 1 survivor were currently enrolled in postgraduate education programs. Out of the whole sample size, three individuals discontinued their education at the primary level, with just 1 of them being classified as illiterate. [Table 2]

At the time of diagnosis, a total of 6 patients were found to be married. Out of the initial cohort of 10 individuals who were single, a total of 4 individuals entered into marriage over the subsequent period of observation. At the time of diagnosis, six individuals were identified as widows. The occurrence of divorces was absent. [Table 3]

Half of the patients had early stage disease, whereas 48% presented with advanced stage disease. A total of two patients were unable to be staged. Chemotherapy was administered to all patients with the exception of one. The chemotherapy regimen involved the administration of 3-4 rounds of Bleomycin, Etoposide, and Cisplatin. [Table 4]

The statistical analysis did not reveal a significant difference in the Total Quality of Life score between the group of individuals who had their fertility preserved and the group who did not. Both variables had elevated scores, with a mean of 90.47 for the first variable and 77.65 for the second variable. [Table 5] Fertility preservation surgery was successfully performed on a cohort of 10 patients. All 10 patients experienced the restoration of their menstrual cycles. Out of the total sample size of 5 individuals, it was

determined that contralateral ovary preservation and fertility preservation were not feasible. Among this subgroup, 5 individuals were identified as unmarried, with a mean age of 26.6 years. [Table 6]

The total quality of life (QOL) scores exhibited a high level in both survivors at early and advanced stages, with a mean score of 90.33 and 79.16, respectively. The average score among all survivors was 84.74. [Table 7]

**Table 1: Age of patient**

Sr. No.	Age (years)	Number (N=10)
1.	1 to 10	1
2.	11 to 20	3
3.	21 to 30	3
4.	31 to 40	1
5.	41 to 50	2

**Table 2: Qualification**

Sr. No.	Educational Status	Number (N=10)
1.	Illiterate	1
2.	Primary School	3
3.	Secondary School	1
4.	Graduation	4
5.	Post-graduation	1

**Table 3: Marital condition**

Status	Current condition			
	Single	Married	Widow	Divorce
Single	4	2	0	0
Married	0	2	0	0
Widow	0	0	6	0
Divorce	0	2	0	0

**Table 4: Diagnosis stages**

Sr. No.	Stage	Number (N=10)
1.	Stage I	4
2.	Stage II	2
3.	Stage III	2
4.	Staging not possible	2

**Table 5: Ovary condition**

Sr. No.	Ovary Status	Number (N=10)
1.	Ovary Preserved	6
2.	Ovaries Removed	4

**Table 6: Menstruation condition**

Status	Number (N=10)
Regained Menstruation	5
No Menstruation	5

**Table 7: Quality of Life and Ovarian Health**

Sr. No.	Ovary Status	Number	Mean	SD
1.	Preserved	5	89.1243	16.22537
2.	Removed	5	75.5678	17.05323

## DISCUSSION

Cancer of the ovarian germ cells most commonly develops in young adults. Most of them have not yet tied the knot or are in the process of doing so. The vast majority of them are college-educated and otherwise well-off.<sup>[12]</sup> The researchers wanted to see how fertility preservation treatment affected long-term survivors of ovarian germ cell tumors and what factors were most important in determining their quality of life. Cancer diagnosis and therapy had no bearing on the level of education attained by the patient. A big study by Victoria Champion et al., also

revealed high education level among Ovarian GCT survivors. There was a high level of education among the population, with 47% holding a bachelor's degree or higher, 29% holding some college, and 21% holding only a high school diploma. Only 3% of the people in the research did not complete high school.<sup>[13,14]</sup>

3 survivors have been married after the completion of treatment. Concerningly, however, 7 individuals who were not married were unable to have their ovary maintained and remain childless. Since almost 40% of survivors are younger than 25 years old, it's possible that their young age has something to do with the high rate of single survivors. Cella and Tross

found that survivors of Hodgkin's disease had lower levels of intimacy motivation, and this may be related to the lower marriage and greater divorce rates that they observed. All of the single characters in our series are quite young and still in the midst of their academic pursuits, therefore this is not the case. Nobody got divorced.<sup>[15-16]</sup>

While there is a wealth of research available on the long-term consequences of BEP in men with testicular cancer, data for women with ovarian germ cell tumors is more limited. Long-term toxicity, neuropathy, and deafness were not observed as a result of treatment. The quality of life (QOL) may be negatively impacted by several of the commonly utilized chemotherapeutic drugs due to the toxicities they cause.<sup>[17]</sup>

Patients in both the early and late stages reported a high quality of life overall. According to the EORTC questionnaire, the mean overall QOL score was 84.74, which is considered a high level.<sup>35</sup> The group who kept their ovaries had much higher levels of physical, role, and emotional functioning.<sup>[18]</sup>

Those who survived to a later stage were more likely to experience hormonal signs including hot flashes and vaginal dryness. The similar pattern in the group with their ovaries removed suggests that this is the result of bilateral ovariectomy. No research has compared the quality-of-life concerns faced by OGCT survivors at different stages. Our findings need to be confirmed by larger research with higher statistical power.<sup>[19]</sup>

More early-stage survivors experienced financial challenges. A further study addressing the social and economic factors is needed, therefore this cannot be qualified any further. Most of the survivors were from lower socioeconomic strata. Quality of life outcome variables' means and standard deviations were compared to existing literature. These results were fairly consistent with those reported for other groups. Therefore it is obvious that overall, the ovarian germ cell population was similar to other populations reported in the literature.<sup>[20,21]</sup>

Overall health and confidence were much higher in the fertility-preservation group. The fertility-preserved group performed much better on measures of physical and role functioning as well as emotional well-being. Hormonal symptoms were much greater in the ovaries removed group. Emotional, cognitive, and social functioning were not affected in any way, and neither were any other characteristics. The severity of symptoms did not differ between the two groups. No research has compared the outcomes of women whose ovaries were removed with those whose were left intact.<sup>[22,23]</sup>

Preserving reproductive-endocrine function and fertility is an important part of ensuring a high quality of life for cancer survivors. It is not known how cancer treatment will affect fertility specifically, and pregnancies are the only way to confirm that fertility has been preserved after treatment. All 28 patients in our research who had their fertility preserved started menstruating again. Surgery and chemotherapy for

malignant ovarian germ cell tumors have been shown to disrupt menstrual function in 20-30% of individuals, while other authors have reported rates closer to 10%.<sup>[24,25]</sup>

In a study of 10 patients with OGCTs, Gerhenson et al. found that 83% of women were having normal menstruation at the time of follow-up, with 68% maintaining regular menses after chemotherapy was completed. Eleven mothers gave birth to 22 children, all of whom were healthy. Contrary to what is reported in the literature, all interviewed survivors reported having regular menstrual cycles.<sup>[26]</sup>

Thirteen married people out of a total of 28 survivors who have had fertility-preserving surgery. They've had 11 healthy babies between 9 of them. There was no infertility among them, and none of their children appear to have any sort of physical or mental impairment. After finishing treatment, couples conceived on average 3.5 years later. According to the statistics, 70% of the survivors were able to conceive. Fifteen of them have not yet married, which is a positive sign, and they all have regular menstrual periods.<sup>[27,28]</sup>

Whether or not to have children after cancer treatment is a very personal decision that may entail factors beyond a person's reproductive health. Because chemotherapy takes so long, most survivors are followed for a long time. Using 2 surveys, an investigation into multiple aspects of quality of life was attempted. The percentage of successful pregnancies in the group whose fertility was preserved is broken down in detail. Unreported in the literature is a comparison of Quality of Life scores between early and advanced stage survivors and between those whose fertility was preserved and those whose ovaries were removed.<sup>[29-31]</sup>

## CONCLUSION

The overall psychological well-being and overall quality of life are found to be favorable among those who have survived ovarian germ cell tumors. The group who underwent fertility preservation shown notable improvements in both physical and mental functioning. Individuals who experienced menopause as a result of their survival had a higher prevalence of hormonal problems. The significance of fertility preservation is once again underscored, and there is a strong need to actively pursue measures to safeguard reproductive capacity during the initial surgical intervention.

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