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Preserving fertility in patients malignant

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Abstract

Fertility preservation is becoming increasingly important to improve the quality of life of cancer survivors. Although the guidelines state that discussion about fertility preservation should take place before starting cancer treatment, a variety of fertility preservation techniques are available at this time that can be used individually or together on the same patient to increase efficiency. Cryopreservation of eggs and embryos is now an established technique with limitations. Cryopreservation of ovarian tissue is currently experimental, but has the advantage of having a wider clinical application and keeping the fertility window open for as long as possible. Both chemotherapy and radiotherapy have a significant impact on fertility and fertility preservation measures must be taken before these treatments. The need for fertility preservation should be considered, taking into account the morbidity and mortality associated with cancer. Therefore, a multidisciplinary collaboration is needed between oncologists and obstetricians and oncologists to improve awareness of maintaining malignant cancer patients in good fertility that enables them to conceive and give birth.

Keywords: Cancer, counseling, cryopreservation, preservation of fertility in women

Introduction

Fertility is a valuable concern in a person's life, especially women, as many factors and conditions, such as chemotherapy and radiotherapy that are performed during cancer treatment, can jeopardize a patient's fertility before family planning is complete. The use of chemotherapy and radiotherapy can be a side effect of impaired reproduction and, in severe cases, reduced fertility in women. (Salama, 2019) ^[16, 17]. Oncofertility expands reproductive opportunities for young cancer patients from the interaction between oncology and reproductive medicine into a relatively new, interdisciplinary field. Whereas the term "tumor sterility" was first coined in 2006 by Professor Teresa Woodruff, Dr. A showed that, malignant hematomas in women are not uncommon, accounting for 7 to 9% of new cancers and suspected deaths. The most common forms of malignant hematomas in girls and young women requiring infertility treatment are acute lymphocytic leukemia (ALL), acute myeloid leukemia (AML), non-Hodgkin's lymphoma (NHL) and lymphoma (LH). Other forms of hematological malignancies such as chronic lymphocytic leukemia, chronic myeloid leukemia and myeloma usually appear later after menopause in women (> 50 years of age), however, they do not cause severe infertility problems. (Molnár, 2014) ^[12], (Harries, 2020) ^[5]. Fertility preservation can be defined as the use of medical techniques to preserve a woman's ovaries for the reproductive process. So that the process of preserving fertility is carried out by many medical procedures explored by doctors. While a woman suffers from cancer, her eggs are frozen until the end of the treatment period. (O'Brien, 2018) ^[13]. This protects the eggs from the dangers of radiotherapy to which the woman is exposed throughout the treatment period. In addition, the use of assisted reproductive therapy can increase a woman's chances of conceiving. Although many strategies have been described in the medical literature that interfere with fertility preservation options and cancer treatment, these strategies must be based on the woman's initial condition in terms of her age, body strength, and the period of her diagnosis. And most importantly, its desire to preserve future reproductive potential. (Waimey, 2015) ^[22], (Hussein, 2020) ^[6, 7]. It is highlighted that chemotherapy and radiotherapy have greatly improved the life expectancy of these patients in cancer patients who develop cancer at a young age. As special treatments in cancer often lead to infertility due to the massive destruction of the ovarian reserve in women. This presented study focuses on the effects of cancer treatment on fertility and the various innovations offered medically, assisted reproduction, and surgery that patients can use to

achieve future pregnancy options and preserve fertility in a variety of medically foolproof and successful methods. (Hussein, RS, 2020) ^[6, 7]. Whereas, given the great and increasing interest in the new fertility reserves that medicine provides to women. It is emphasized that, in the near future, recent and good developments will be of great importance and successful benefit female patients, with regard to the reproductive process. Nevertheless, it is important in the day-to-day work of physicians to improve the interdisciplinary collaboration between obstetricians, oncologists, surgeons, immunologists and endocrinologists all, so that individual options can be presented to each patient for fertility preservation before surgery or cancer treatment. Treatment with a GnRH analogue may preserve fertility in some female patients, but not in all cases so that it may be unsuccessful in some. At present, ovarian tissue cryopreservation appears to be a promising way to provide cancer patients with a realistic way to preserve fertility, when the radiotherapy process ends, and it is also a very important possibility for patients with psychological causes. (Salama, M, 2019) ^[16, 17].

Oncofertility

Maintenance of reproductive function in people with previously diagnosed cancer from anywhere. In global practice, specialists from reproductive centers recommend that before starting oncology, their patients should preserve eggs, sperms and embryos by cryopreservation. In the vast majority of cases, this is the only way to preserve the patient's right to deliver a healthy baby (Demeestere, 2020) ^[2].

Whatever type of chemotherapy treatment is planned, it is important to maintain ovarian reserve before it is performed. If patients have made a decision to preserve the patient's ovarian reserve, then before "freezing" the cells, she must undergo an examination, as well as before the IVF procedure, Fertility preservation is an important aspect of cancer patient rehabilitation.

The highly qualified and experienced specialists in our Reproductive Medicine department will select the optimal program for each patient to preserve fertility, taking into account the possibility of stimulation and many other factors.

It is important to note that the most common forms of malignant hematomas in girls and young women requiring infertility treatment. Reproductive toxicity therapy, which includes charter chemotherapy and comprehensive radiotherapy, is widely used to treat girls and young women with malignant trauma. The risk of gonadotrophin and the subsequent premature ovarian failure and fertility loss depends mainly on the type and stage of the disease, the dose of cancer treatment, and the age of the patient at the start of treatment. To avoid or at least alleviate the potentially fatal complications of gonadotoxin induced by chemotherapy for a cancer patient, an effective and comprehensive strategy for the mechanism of freezing her ovaries should be in place, including options (Kort, 2014) ^[9].

Methodology

AYA with Cancer has systematically researched the bibliography and literature to obtain all guidance in relation to clinical practice on fertility preservation in malignant cancer patients. The literature search combined some of the

definitions as well as demographic terms and related diseases affecting (or adolescents) and fertility (infertility and its treatment). The research provided a set of guidelines that are attached to clinical practice. In addition, comprehensive online searches including approved and submitted guidelines extracted by clinicians regarding clinical practices that have not been classified in the TYA Oncology Reference Database are available. He also consulted with field experts a set of preservation guidelines highlighting the mechanism of ovarian cessation and freezing, which were identified using a similar search strategy, to ensure that the TYA guidelines related to cases, children and adults do not lose fertility rates, different versions of TYA, so that they are evaluated at a number of instructions (Quinn, 2015) ^[14].

In addition, all clinical practice guidelines were reviewed by two investigators, most notably (TYA Consultant Oncology and Academic Oncology Intern), and this was done according to the evaluation criteria (AGREE-II) of the study and evaluation guidelines. AGREE-II is an online assessment tool used to assess the methodological rigor and transparency with which evidence is developed. The AGREE II tool consists of a total of 23 individual elements, divided into six groups, the most prominent of which are: scope and purpose, stakeholder engagement, development rigor, clarity of presentation, applicability, and editorial independence. The intensity of the development category is divided into 8 phrases, the most important of which are, (Close, 2019) ^[11].

Whereas, the used methodology method was used to find evidence

1. All the strengths and limitations of the set of evidence are clearly and understandably explained.
2. It was also explained how to formulate and put all the recommendations in an understandable manner.
3. Establish and articulate all health benefits, side effects and risks when making recommendations.
4. Highlight that there is a clear and prominent relationship between the recommendations and the evidence.
5. Externally review the evidence by experts before publishing it.
6. A guide is provided for updating the directory.

The sample is evaluated at more than 75% (42/56) in the section "Growth Hardness" and is summarized in a descriptive manner. Whereas, prior to the start of the study, a group of researchers agreed that this classification, which is the final acceptable range as no evaluation was presented in AGREE-II. A third independent investigator (TYA Consultant Oncology) is consulted in the event of a disagreement between the investigators. In the study, researchers investigated the content, scope, and consistency of the recommendations. Researchers in the study linked all areas put together with evidence quality (general score AGREE-II), accuracy of development (AGREE-II subgroup score), and guidelines and evidence on which the study is based to further explore the main elements of the inconsistency. Finally, recommendations are made. (Michalczyk, 2021) ^[11].

Organ preservation surgery

There are several S3 guidelines for treating patients with

malignant ovarian cancer, cervical cancer and endometrial cancer. Whereas, in order to avoid inconsistencies between the guidelines, a coordinator of the S3 Guidelines and the Coordinator of the S2k Guide to Fertility Preservation unanimously agreed to include relevant data, recommendations, and key texts laid out from the S3 Guidelines in the S2k Guidelines.

Ovariopexy and gonadal protection for the radiotherapy

Table 1: The consensus-based and the statement 4.S25

| The expert consensus | The strength of the consensus +++ |
|----------------------|-----------------------------------|
|----------------------|-----------------------------------|

Removing the ovaries from the area to be irradiated can reduce the risk of developing irradiated ovarian failure.

The cryopreservation of the unfertilized oocytes

Table 2: The outcomes for the unfertilized oocytes, that gives after slow freezing or even after vitrification

| | Slow freezing | Vitrification |
|---|---------------|----------------------|
| Survival rate per unfertilized oocyte after cryopreservation/thawing | 45–67% | 80–90% |
| Fertilization rate per unfertilized oocyte after cryopreservation/thawing | 54–68% | 76–83% |
| Clinical pregnancy rate/transfers | 11.6% | 44.9% (p = 0.002) |
| Congenital malformation rate | 0.5% | 1.3% |

Table 3: The consensus-based on the recommendation 6.R80

| The expert the consensus | The strength of the consensus +++ |
|--------------------------|-----------------------------------|
|--------------------------|-----------------------------------|

Women who undergo a treatment protocol to adapt their preparation for stem cell transplantation have a high risk of developing infertility. Therefore, patients should be informed of the importance of receiving advice about fertility protection during the course of treatment.

Stem cell transplant

Women who undergo conditioning protocol therapy in preparation for stem cell transplantation are at high risk of infertility, as these patients must be informed and counseled on how to protect fertility from infertility.

In addition, one of the main problems with using cortical ovarian fragments in cancer patients is the potential risk of frozen and thawed ovarian tissue containing malignant cells that could cause disease recurrence after a new transplant. With non-Hodgkin's lymphoma, the risk is small, even if it is not present. In leukemia, malignant cells may be present in the blood and there is a risk of transmission. (Schechter, 2005) [18].

Ethical considerations

Long-term preservation of a spouse or gonad still raises unanswered ethical questions, but it is worth considering and discussing solutions to it before choosing a fertility preservation protocol. One reason for this discussion stands out because of uncertainties limiting the incorporation of routine and experimental strategies, as well as the future use of conserved tissues and cells in light of the potential death of the biological owner. (McDougall, 2018) [10].

How long can biological material be cryopreserved?

While cryopreserved sperm can survive for many years, in addition to ovarian tissue tolerating freezing for at least a short period, doctors have experience with these and other advanced technologies to ensure safety and daily use.

The question that arises is, does freezing and thawing affect the quality and function of cells and tissues? Or is it safe to use and apply to patients? But what is emphasized is, only time can answer these questions.

When the benefits of the cause are identified, many questions and references are made to fertility preservation protocols for cancer patients. The reason for this is that technically, these treatments are mainly and significantly related to the diagnosis of infertility and that cancer patients are not necessarily sterile during the treatment time or they may become sterile after the treatment is completed. On the other hand, providing fertility preservation strategies against diseases or treatments that may affect them, while respecting the independence of choice by the patient and the foundation of a free society, reaches the level of moral commitment. (Shah, 2011) [19].

Consequently, doctors and researchers understand a matter, that preserving fertility prior to anti-neurological treatment based on the intent of prevention, humanity and social interpretation based on the biological, psychological and social effects of reproductive disorders in patients is one of the medical implications. For cancer patients at risk of losing fertility, the true ethic is to provide the best information and data on potential risks and the techniques currently available to preserve a spouse and stimulate their fertility. In this way, informed patients and their families can make the right decisions based on the clarity they need based on their personal interest in the possibility of future pregnancy. (Stark, 2018) [20].

Individuals should ask troubling questions about a deliberate approach to preserving another person's fertility. The observation that a certain medical procedure is often seen, in the true sense of a feminist writer, as providing a solution to a social problem. One question relates to the social pressure that may be insufficient for parents of women with cancer or even teenage girls with cancer.

Finally, the universal right to reproduction provides moral, legal and moral support for the fertility development of patients with carcinomas. Likewise, the principles of independence and compassion must be clearly articulated and not against the chosen strategy path that is devised and adopted on the matter, including respect and concern when children and youth are able to better understand the situation. (Guideline, 2019) [3].

Expected results of the study

A number of studies on reproductive outcomes after FSS have been conducted in the early and late stages of MOGCT, and the evidence for fertility remains unclear. This is because MOGCT is a rare cancer and it has only been 30 years since prognosis has improved dramatically with BEP therapy. However, among the important toxins associated with BEP, the most relevant is decreased fertility due to follicle destruction, ovarian tissue fibrosis, and decreased primordial follicles. These effects appear to be closely related to the type and schedule of treatment, total dose, duration of treatment, and drugs used that may be given to patients. Of all the chemotherapy drugs that are offered, cisplatin is one of the most likely to develop

ovarian failure. According to available data, menstrual function is maintained in more than 85-95% of patients with MOGCT after platinum therapy. (Zhang, 2017) [23].

Seventy-one percent of patients who received FSS and BEP chemotherapy maintained normal menstrual function during and after treatment, and the remaining patients reported that they returned to normal menstruation within 6 months after completing the chemotherapy. Just because menstruation resumes after cancer treatment does not necessarily mean normal fertility. The incidence of premature menopause reported in the literature and previous studies among women who have treated the disease ranges between 3 and 7.4%. (Hannan, 2015) [4].

According to previous scientific studies regarding the potentially dangerous effects of cancer treatment on pregnancy, there is no evidence that children who survived MOGCT are at an increased risk of developing genetic or birth defects due to treatment and medication. In addition, current data are scarce and more long-term studies are needed to confirm this data provided. However, since the available data are reassuring to report sterility rates of around 20%, young women with MOGCT should be exempt from promising tumor and fertility outcomes after treatment at any stage. (Terenziani, 2019) [21].

Anticipate the problem

The growing number of young cancer survivors with positive outcomes identifies the need for a more holistic and clearer approach to improving quality of life after cancer, including preserving fertility in cancer-treated patients. This new treatment model raises several complex questions for patients, the most prominent of which is what can the patient or the father of a young child do with this information once the fertility risk factors and the likelihood of infertility are assessed? Also, what if the insurance company refuses to treat infertility, which exacerbates the economic imbalance between the patient's care and society as a whole and affects the patient's physical, health and psychological condition? How can doctors and scientific researchers solve ethical and legal problems of consent? (Robison, 2014) [15].

A decade ago, given the state of experimental biology research at the time, many of these topics were irrelevant and largely unexamined as today. However, these questions are now addressed through a multidisciplinary approach to medical advancement and patient care. Besides, the ability to provide accurate, comprehensive, and somewhat verifiable information for generations, which is very important. Plus, doctors must get rid of old patterns of care and realize that young patients are not only interested in preserving their present lives, but also wanting to fill the future. The following are questions that can be asked to the doctor before the treatment process:

- What are the risks of infertility from the recommended treatment?
- Can potential infertility be temporary or permanent?
- Are there other effective treatments that aren't too dangerous? (Improvement, 2019) [8].

Conclusion

Cancer treatments, including chemotherapy, are widely used to treat girls and young women with malignant bruises, and radiation, chemotherapy and medications can lead cancer patients to a loss of fertility when treatment ends. In order to

avoid this matter, or reduce the incidence or incidence of its complications to childbearing, an effective and comprehensive fertility strategy must be implemented on patients that includes a variety of options for preserving and restoring fertility while the patients' treatment period ends, from initial too experimental before, during and after cancer treatment. A multidisciplinary approach that includes close coordination and collaboration between hematologists, obstetricians, reproductive biologists, scientists and patient navigators is essential for high levels of care.

References

1. Close A. Adolescent and young adult oncology- past, present, and future. ACS journals. Online library wiley 2019.
2. Demeestere. Multiple Approaches for Individualized Fertility Protective 2020. www.hindawi.
3. Guideline A. Fertility Preservation for People Affected by Cancer. Starship 2019.
4. Hannan A. Malignant ovarian germ cell tumors. Ncbi 2015.
5. Harries J. Contraceptive needs and fertility intentions of women. BMC women's health 2020.
6. Hussein R. Fertility Preservation in Women: Indications and Options 2020. www.mayoclinicproceedings.
7. Hussein RS. Fertility Preservation in Women - Mayo Clinic Proceedings 2020. www.mayoclinicproceedings.
8. Improvement N. living with and beyond cancer 2019. Gov.uk.
9. Kort J. Fertility issues in cancer survivorship. American Cancer 2014.
10. McDougall R. Paper: Ethics of fertility preservation for prepubertal children. NCBI 2018.
11. Michalczyk K. Fertility Preservation and Long-Term Monitoring. MDPI 2021.
12. Molnár Z. Fertility of testicular cancer patients after anticancer treatment. NCBI 2014.
13. O'Brien M. Co-Creation of a Hematopoietic Stem Cell. SOPHIA 2018.
14. Quinn G. Quality of life in adolescent and young adult cancer patients. NCBI 2015.
15. Robison L. Survivors of Childhood/Adolescent Cancer: Life-long Risks. NCBI 2014.
16. Salama M. Preserving fertility in female patients with hematological 2019. www.sciencedirect.
17. Salama M. Preserving fertility in female patients with hematologica 2019. www.sciencedirect.
18. Schechter T. Pregnancy after stem cell transplantation. NCBI – NIH 2005.
19. Shah D. Medical, ethical, and legal considerations. Deep Blue 2011.
20. Stark D. Preserving fertility in an unconscious patient with Goodpasture. J intensive care. Biomedcentral 2018.
21. Terenziani M. Malignant ovarian germ cell tumors in pediatric patients. CORE 2019.
22. Waimey K. Understanding Fertility in Young Female Cancer Patients. www.ncbi.
23. Zhang N. A retrospective study of reproductive outcomes after fertility. Ovarian research 2017.