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FERTILITY PRESERVATION SOCIETY (India)

FPS(I) Newsletter

Dear Friends,

Greetings from the 'Fertility Preservation Society' of India. We bring to you our third newsletter which focuses on lymphomas - one of the common cancers found in childhood and adolescence. With survival rates of 85-90% there is an urgent need to address the reproductive concerns of these young people. Fortunately fertility preservation techniques can be offered to both pre and post - pubertal girls. The techniques, limitations and safety of these procedures have been presented. I hope you find this newsletter beneficial.

Our 3rd Annual conference 'Fertiprotect – 2016' is coming up. It will be held in the garden city of Bengaluru on the 27th and 28th of August. We are honoured to have two pioneers in oncofertility – Dr. Dror Meirow and Dr. Teresa K. Woodruff with us on this occasion.

I look forward to your participation.

Best Wishes
Nalini Mahajan
President FPS(I)

From the Editor

Welcome to all !

The third edition of the newsletter of FPSI focusses on important aspects of fertility preservation in lymphomas. Awareness of this option becomes very pertinent as lymphomas most often occur in young population. This edition is meant to serve as a ready reference to clinicians and specialists to deal with this challenging science. The future editions will bring more diverse issues concerned with fertility preservation to your doorstep.

Warm regards,
Padma Rekha Jirge

Lymphomas - Impact of disease and its therapy on Fertility

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Lymphomas are broadly classified as Hodgkins and non Hodgkins lymphoma. Hodgkins lymphoma with currently available modalities of treatment can be cured in 80% of cases all stages combined. Non Hodgkins lymphoma constitute a heterogeneous group of lymphomas involving B and T lymphoma. At one end is potentially curable diffuse large B cell lymphoma, while at the other is the incurable low grade non Hodgkins lymphoma. Survival has improved over the last few decades due to better understanding of chemotherapeutic drugs and improved supportive care. However infertility, cardiomyopathy and secondary cancers are major side effects.

Hodgkins lymphoma

Incidence of Hodgkin lymphoma is biphasic - one peak is in the 2nd decade and the other peak in the 5/6 thdecade. As the incidence is high in reproductive age group, patient should be counseled about fertility issues related to disease and chemotherapy at the time of diagnosis. In a study conducted by European organization of research and treatment of cancer (EORTC) in patients with Hodgkins lymphoma, it was found that there was association between disease and azoospermia. Overall incidence of azoospermia was 3% in patients with Hodgkins lymphoma at presentation. Initially the treatment of choice was MOPP (Mechlorethamine, vincristine, Procarbazine and Prednisolone) however the chances of azoospermia were very high 90% and ovarian failure was seen in 25% of patients with this regime. CurrentlyABVD (Doxorubicin, Bleomycin, Vinblastine and Dacarbazine) is used, it is less gonadotoxic and incidence of infertility with ABVD is less than 10%.

Mechanism of infertility with Alkylating agents- Alkylating agents produce covalent bonds between DNA strands, rendering cleavage impossible during replication and thus blocking cell division.

Risk factors for infertility

Patient factors

Age- Women above 30 years of age have greatest risk for infertility following chemotherapy. There is some evidence towards reduced ovarian reserve in lymphoma affected women even before initiation of chemotherapy. In men, as the spermatogonia stock is reprlenished throughout the life, age is not a predictor of infertility.

Symptoms- Irrespective of the stage of disease, presence of symptoms is a predictor of infertility. The probable correlation between symptoms and infertility is due to release of cytokines in patients with symptoms.

Chemotherapy related factors

Among first line chemotherapeutic regimen used in Hodgkins lymphoma the incidence of infertility are in descending order with escalated BEACOPP (Bleomycin, Etopside, Doxorubacin, Cyclophosphamide, Vincristine, Prednisolone, Procarbazine), standard BECOPP and ABVD. Fertility after second line chemotherapeutic regimen used in Hodgkins lymphoma has not been studied. Post allogeneic stem cell transplant ovarian failure and infertility has been reported in adults and almost 80% of pediatric patients. Pregnancies have been reported in patient after autologous stem cell transplant.

Non - Hodgkins lymphoma

The gold standard treatment for Non Hodgkins lymphoma is CHOP(Cyclophosphamide, Adrimaycin, Vincristine and Prednisolone). Rituximab along with CHOP chemotherapy has been used in routine practice for all CD20 positive non Hodgkins lymphoma. CHOP/RCHOP regimens contain alkylator, cyclophosphamide. However the cumulative dose of cyclophosphamide is less than 5 grams/m^2. In one of the study, about 50% of women who underwent CHOP chemotherapy were pregnant in their first remission. The rate of gonadal dysfunction is very low among young, CHOP treated, non-Hodgkin's lymphoma patients. Fertility preserving techniques are not usually needed in them.

Assessment of Infertility

1) After chemotherapy, recovery of normal menstrual cycles does not guarantee normal fertility, but amenorrhea is a strong negative predictor of fertility. Presence of transient amenorrhea after treatment is a risk factor for subsequent infertility.

2) Assessment of FSH, inhibin, AMH- Increased FSH and decrease inhibin and AMH point towards infertility post chemotherapy.

3) The essential test to assess male fertility is semen analysis. It permits a study of the sperm count, morphology, vitality and motility which reflect exocrine testicular function and of fertility.

Different fertility preservation methods

With an improvement in the prognosis for lymphoma, the management of resultant infertility has become an important goal. It requires close collaboration between oncology and ART teams. Several options are available depending on the patient's age, presence or absence of a partner and patient's wishes.

Fertility preservation techniques in female patients:

1) Embryo Cryopreservation: Human embryo freezing and thawing protocols are well established in ART. The woman must be post-pubertal and requires to be married or have a partner. After ovarian stimulation, mature oocytes are collected, fertilized **in vitro** and vitrified. Once treatment is complete and patient desires a pregnancy the embryos (1 or 2) are implanted into the uterus. Ovarian stimulation requires 10–14 days and oocyte retrieval is done under anaesthesia. The possibility of delaying the start of treatment should be discussed and is dependent on the stage of the lymphoma and on the patient's wishes, especially in relapse cases or if intensification is proposed.

2) Mature oocyte cryopreservation, appears to be the most logical option for women of childbearing age. After ovarian stimulation, mature oocytes (MII) are frozen. After thawing, they are fertilised **in vitro** with the partner's sperm and the resulting embryos are then placed in the uterine cavity of the patient.

3) Ovarian tissue cryopreservation (OTC) is a promising technique. The principle is to remove a whole or part ovary by laparoscopy. The ovarian cortex is isolated and thin strips are frozen by slow freezing or vitrification. Approximately 60 pregnancies have been reported with this technique, many of them being spontaneous. It is usually proposed in women where early initiation of chemotherapy is required. Can be done in pre and post-pubertal stage. Risk of reseeding of tumor is a concern.

Fertility preservation techniques in male patients:

In adult men and adolescents after puberty, The preservation of ejaculated semen is the most current. The semen is collected by masturbation and analyzed according to WHO criteria. The ejaculate is then diluted with cryoprotectant, packed in straws, frozen in liquid nitrogen vapor and placed in tanks for long-term storage in liquid nitrogen. Usually 2 - 4 collections should be done if possible. In case of azoospermia, a testicular biopsy can be performed and vitrified after sperm identification.

In most patients, even if the quality of the sperm is low, the ejaculate can be used for ART. The different techniques available are : - intrauterine insemination in vitro fertilization IVF; in vitro fertilization with an intra-cytoplasmic sperm injection (ICSI). ICSI allows ART to be proposed to very oligospermic patients. ISFP guidelines suggest that all men undergoing chemotherapy should be offered semen cryopreservation. Most patients recover normal spermatogenesis after ABVD, recovery may occur 6-18 months post therapy.

Conclusion:

Infertility is one of the major side effect of chemotherapy. However with currently used chemotherapy protocols for lymphomas, the chances of infertility are comparatively less. However any patient in reproductive age group who are undergoing chemotherapy (first line or second line) for lymphoma should be explained about chances of infertility and offered modalities to preserve fertility.

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A Glimpse of Fertiprotect II
Fertiprotect - 2015

Fertility preservation in young girls and women with lymphomas: Challenges in IVF and Ovarian cortex preservation

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Lymphoma is a cancer that originates in the lymphatic system. Both Hodgkin lymphomas (HL) and non-Hodgkin lymphomas (NHL) have an increased incidence in the second decade of life thus affecting the peak reproductive phase of a woman. **In developing countries, the early peak occurs before adolescence.** (PDQ Cancer Information Summaries).

Early diagnosis, advent of new drugs and improved chemotherapy regimes, has led to vast improvements in cancer survival especially for children and adolescents. The 5-year survival rate in children and adolescents for HL is 95% and for NHL is 82-87%. Given this dramatic increase in survival providing an improved quality of life becomes vital and one of the most important quality of life issues in reproductive age cancer survivors is the ability to have biologic children.

Treatment of Hodgkins and Non-Hodgkins Lymphoma involves the use of combination chemotherapy. Radiation therapy and stem cell transplant are reserved for patients who have not had a complete response to chemotherapy.

Effect on Ovarian Reserve and Fertility : Both chemotherapy and radiotherapy can destroy the ovarian primordial follicular pool predisposing the woman to premature ovarian failure. Extent of ovarian damage depends on the chemotherapeutic agent, total cumulative dose and age of the patient at initiation of therapy. Amongst the chemotherapeutic drugs alkylating agents are the most gonadotoxic. A higher dose of alkylating agents is needed to cause infertility in women as compared to men. Older women are more susceptible, as they have a lower ovarian reserve. A female pediatric cancer patient is likely to have a window of fertility even after completion of treatment although her overall fertility span may be reduced. This fertile window may provide an opportunity for fertility preservation post chemotherapy. Use of alkylating agents along with radiation therapy has a synergistic toxicity and infertility may result with lower doses of both alkylating agents and radiation exposure.

Fertility Preservation (FP) Techniques in Females :

1. Embryo cryopreservation (Post-pubertal females)
2. Oocyte cryopreservation (Post-pubertal females)
3. Ovarian tissue cryopreservation (Pre and post-pubertal females)
4. In vitro maturation

An evaluation of the ovarian reserve prior to the use of any FP technique is vital, as it dictates reproductive outcome. Ovarian reserve tests used are AMH, AFC and Day 2 FSH, E2 (in conjunction) and Inhibin B. Patients with lymphoma demonstrate diminished ovarian reserve when compared with healthy controls and patients with other malignancies.

Embryo cryopreservation requires the patient to go through in-vitro fertilization (IVF). Embryo cryopreservation is an established technology that provides a good success rate depending on the number and quality of embryos stored. Similar cumulative pregnancy and live birth rate per transfer for cancer patients compared to controls (37 vs. 43 % respectively, p=0.49) (30 vs. 32 % respectively (p=0.85) has been reported.

Mature Oocyte cryopreservation can be offered to all post-pubertal women and is a better option to maintain reproductive autonomy. 8-10 oocytes need to be frozen to give a reasonable chance of pregnancy. An implantation potential of 6%/survived oocyte is reported.

Limitations in lymphoma patients:

Controlled ovarian stimulation (COS) takes approximately 10-12 days from the second day of period and this may delay cancer treatment. In lymphomas there is invariably an urgency to start therapy.

1. Ovarian reserve is lower in patients with lymphoma hence higher gonadotrophin doses may be required.
2. Ovarian Hyperstimulation if it occurs causes further delay in patients and is associated with unfavourable haemodynamic changes. Great restraint needs to be used during ovarian stimulation.
3. Sperm is required for fertilization when embryo freezing is done. Lymphoma patients generally fall into the young adolescent group and may not have a steady partner at this age. Use of donor or partner sperm limits future reproductive autonomy and increases stress levels.
4. State of health & Age of patient – patients are generally very young and ill. This may lead to an increased anaesthetic and surgical risk.
5. Risk associated with OPU – infection risk increases because of low immunity.
6. One time procedures offer a limited reproductive potential.
7. These procedures cannot be used in pre-pubertal patients.

8. Ethical, legal and religious implications regarding disposal of embryos /oocytes in case patient dies before she can use the gametes or there is separation of the partners.

In Vitro Maturation- Involves aspiration of immature oocytes after minimal or no stimulation followed by in-vitro maturation and cryopreservation of mature oocytes or embryos generated after fertilization. This procedure has been successful only in specific clinics.

Ovarian tissue cryopreservation(OTC) : involves obtaining ovarian cortical tissue, which is rich in primordial follicles, by laparoscopy or laparotomy. In children the whole ovary has to be removed because of the small size. Removal of both ovaries is not recommended unless there is evidence of complete damage during treatment. Generally one or half an ovary is used. The extent of tissue removed should take into account the large number of follicles lost and the risk of future sterilization. Ovarian tissue is dissected into small fragments, and cryopreserved by slow-cooling technique or vitrification. The tissue is transplanted after completion of cancer therapy into the pelvis (orthoptic transplant) or outside the pelvis - abdominal wall & forearm have been used (heterotopic transplant). Success of the graft is largely dependent on re-vascularization and number of existing follicles in the tissue, as over 30% of follicles are lost during the process. Spontaneous pregnancies can occur after orthoptic pelvic transplant but IVF is necessary when a heterotropic transplant is carried out. More than 60 live births have been reported so far. Cryopreserved ovarian tissue has also been used to initiate puberty in young patients where the H-P-O axis has been affected by radiation. Its use is being advocated to alleviate menopausal symptoms in women who are not desirous of fertility. The average duration of graft function as measured by ovarian activity after transplantation is about 5 years, when follicular density is adequate and well-preserved, and can extend beyond that when tissue has been taken at a young age. Despite the advantages reported and wide use in Europe, ASRM lists it as an experimental procedure.

Advantages of OTC:

1.Avoids delay in starting cancer treatment.

2. Only technique available for pre-pubertal girls.

3. Preserves a larger pool of follicles and allows for resumption of ovarian function.

4. Patients previously exposed to chemotherapy can consider ovarian tissue freezing.

5. Tissue can be used for its steroid function.

Disdvantages : Both ovarian tissue extraction and re-implantation require laparoscopy/mini-lap under general anaestheia. 30% follicular loss occurs at re-implantation.

Concerns : Reseeding tumor cells following ovarian tissue transplantation is a major concern especially for malignancies like lukemias which are systemic in nature. Preoperative imaging prevents operations and storage of tissue with cancer. Evaluation of stored ovarian tissue for minimal residual disease (MRD) using sensitive markers is essential to increase safety and to prevent reimplantation of tissue with malignant cells.

Safety: Cancer cell detection in ovarian tissue using histology, polymerase chain reaction or xenotransplantation and an anlysis of epidemiological data on ovarian metastases show that **the most reassuring data regarding autotransplantation safety is found for lymphoma patients**.

FP Recommendations in Lymphoma

Post-pubertal female : Cryopreservation of embryos or oocytes is recommended if cancer treatment can be delayed. However, immediate treatment is required in most of lymphoma patients and thus OTC should be considered as a FP option. Alternatively, immature oocyte retrieval followed by IVM and cryopreservation of oocytes or embryos can be considered if the expertise is available. The protective effect of GnRHa is questionable and controversial. So far studies have been able to demonstrate a delay in premature menopause but no significant increase in pregnancy rate has been reported. In the absence of other options GnRHa co-treatment can be considered for female patients undergoing chemotherapy.

Pre-pubertal female : if the risk of ovarian failure after cancer treatment is high enough to justify the procedure OTC should be offered.

Criteria and Pre-requisites for OTC :

Edinburgh selection criteria for OTC

Age <35 years

A realistic chance of surviving for more than 5 years

>50% risk of developing POF after treatment

No previous chemotherapy or radiotherapy if aged >15 years at diagnosis but mild gonadotoxic chemotherapy acceptable if age <15 years

Informed consent

Negative HIV, Hepatitis B and syphilis serology

Not pregnant and no existing children

These criteria are based based on multidisciplinary discussion and the working group report of RCOG. They are for guidance only. Every patient should be assessed individually and should be updated in view of emerging evidence and experience. Successful OTC

protocol after chemotherapy has been reported by Abir et al 2016.

International Society for Fertility Preservation (ISFP) Criteria for ovarian tissue banking

1. Age: under 37 years (may be individualized based on the status of ovarian reserve)
2. Ovarian function: premenopausal by FSH, antral follicle count (AFC) or AMH
3. Communication with oncologists: cancer treatment plan, prognosis.
4. When embryo freezing or oocyte freezing is not indicated, hormonal stimulation is not permitted or ART is not allowed or delaying cancer treatment is not acceptable
5. Pre-pubertal girls who do not have any other options
6. High risk for POF (when significant loss of ovarian follicles is anticipated with cancer therapy)
7. Informed consent from adult patients
8. Informed consent from parents/guardians as well as informed assent from minors, if the patient is less than 18 years.
9. Physically and mentally healthy enough for surgery
10. Desires to have a child in the future (preferably before the age 50).
11. Thorough patient counseling: currently available fertility preservation options including embryo and oocyte cryopreservation, how to use cryobanked ovarian tissue for fertility restoration.
12. Should understand experimental nature and potential risks of cancer cell transmission.

Special Challenges faced in Children and Adolescents : Children and adolescents represent a special patient group where there is need for extreme sensitivity when broaching the topic of fertility preservation. Parents have to be given full information of the process, associated risks and success rates. Thorough psychological counselling is required and ethical considerations have to be kept in mind. Careful counseling and informed consent/assent is recommended. Genetic counselling is important in hereditary cancers.

Conclusion : Lymphoma is often encountered in childhood and adolescence. Survival rates have increased dramatically and looking after the reproductive needs of these young survivors is indisputable. Embryo and oocyte preservation, as well as OTC is possible in patients with lymphomas. Risk assessment, counselling, consent / assent in the underage patients, is very important before undertaking any procedure.

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1. Abir R, et al. Hum Reprod. 2016;31(4):750-62.
2. Bastings L, et al. Hum Reprod Update. 2013 Sep-Oct;19(5):483-506.
3. Practice Committee of the American Society for Reproductive Medicine Ovarian tissue and oocyte cryopreservation. Fertil Steril. 2004;82:993–8.
4. Wallace WHB, et al. Lancet Oncol 2014;15:1129-36.

Quiz Corner: Choose the right one !

1. Prepubertal girls with Hodgkin's Lymphoma treated with ABVP :

a) FP is mandatory

b) Ovarain function is preserved in many

c) Ovarian stimulation for FP is possible

d) Reproductive lifespan is unaltered

2. In young women with lymphomas ovarian reserve is reduced a) after chemotherapy

b) post radiotherapy

c) even before any therapy

d) all the above

3. For assessment of female fertility, the ideal marker is

a) basal FSH

b) AMH

c) inhibin B

d) AFC

4. In young men with lymphomas, chemotherapy / ratdiotehrapy are least likely to affect

a) vascular component of testes

b) spermatogenesis

c) Leydig cells

d) Sertoli cells

Ans: 1(b); 2(d); 3(b); 4(c)

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Current scenario

It is estimated that 80,000 new cases of Hodgkin's and non-Hodgkin's lymphoma are diagnosed in the USA annually[1]. Approximately 12.8% of patients diagnosed with Hodgkin's lymphoma are under the age of 20 years, and 31% are between the ages of 20 and 34 years. Conversely, only 1.6% of patients diagnosed with non-Hodgkin's lymphoma are under the age of 20 years, and 3.8% are between the ages of 20 and 34 years. It is estimated that Hodgkin's and non-Hodgkin's lymphomas comprise 8% of childhood carcinomas. Unlike most carcinomas, therapeutics do not include radical surgery but mainly consists of chemotherapy, radiation therapy, and biologic agents, such as monoclonal antibodies or a combination of the two depending on the aggressiveness and stage of the lymphoma.

Effects of gonadotoxic therapy on testicular function :

Male infertility associated with lymphoma and other malignances may occur due the malignancy itself, radiation, gonadotoxic chemotherapy, or a combination of these factors. Although the underlying mechanism has not been fully elucidated, certain malignancies, including lymphomas, may have a direct immune related adverse effect on testicular function. Following treatment of malignancy, some of these patients may experience improvement in semen parameters. Additionally, both radiation and chemotherapy may result in damage to the seminiferous tubules, including spermatogonial cells and Sertoli cells, with resultant detrimental effects on fertility. Active and inactive germ cells are also susceptible to gonadotoxic insult, possibly inducing permanent infertility. This susceptibility to gonadotoxic insult may occur at all ages, including before puberty. However, the degree of recovery attained depends the type of therapy, dose, and fractionation/delivery schedule. Leydig cells are relatively resistant to gonadotoxicity from chemoradiation, and hence cancer treatments rarely result in clinical hypogonadism. Chromosomal abnormalities in spermatocytes may be detectable up to 24 months after cessation of treatment in Hodgkin's lymphoma patients. Alkylating agents, such as cyclophosphamide, chlorambucil, procarbazine, and busulfan, are associated with the greatest risk and have dose dependent gonadotoxicity. The extent of testicular injury sustained by radiation therapy is directly related both to the dose of radiation delivered and the underlying cell type. Exposure to radiotherapy has been known to cause DNA fragmentation in sperm, which may have a negative impact on future fertility.

Unique Challenges in Fertility Preservation for lymphoma patients:

Fertility may be impaired in all patients who are exposed to gonadotoxic chemotherapy and radiotherapy. Patients with both Hodgkin's and non-Hodgkin's lymphoma are less likely to achieve pregnancy post-treatment compared to healthy controls. Childhood cancer survivors with Hodgkin's or non-Hodgkin's lymphoma have an approximately 2-fold-higher risk of infertility compared to their healthy siblings and have worse pregnancy outcomes compared to infertile controls with assisted reproductive technology (ART), including in vitro fertilization (IVF). Indeed, clinical pregnancy and live-birth rates with ART are approximately 70% lower in childhood cancer survivors compared to infertile controls when ART is performed after gonadotoxic therapy. Utilization of fertility-preservation (FP) options, including ART, prior to treatment may enable patients to optimize fertility outcomes and mitigate the impact of cytotoxic therapy on future childbearing. Biologic parenthood is possible for many men and women who will lose reproductive function during the treatment of lymphoma. Addressing fertility preservation with young patients diagnosed with lymphoma should be an essential aspect of their comprehensive care. Pretreatment counseling should involve the potential impact of chemoradiation on future gonadal function and childbearing. FP requires individualization. The optimal approach depends on the type of disease, chemotherapy utilized, the need for radiation therapy, and time available before initiation of treatment. Additionally the patient's sex, age, and costs should be considered.

Fertility-preservation in post pubertal boys and men :

The ability to preserve fertility in males is dependent upon the age at presentation. Approximately in 20% of males at Tanner stage III or above with testicular volumes greater than 10 mL have the ability to provide ejaculated sperm for cryopreservation. Sperm cryopreservation is a well-established procedure utilized for fertility preservation in post pubertal male patients undergoing gonadotoxic therapy. Sperm cryopreservation is achieved through semen collection by masturbation prior to the initiation of chemoradiation. Two to three samples are typically collected, due to frequently reduced semen quality in cancer patients, and samples are obtained prior to cancer treatment to ensure optimal DNA integrity and sperm quality. Some post pubertal males will not be able to provide semen samples through masturbatory ejaculation due to anxiety or medical problems, such as

hypogonadism, neurologic impairment, diabetes, pain, etc. Modalities used in this group of patients include penile vibratory stimulation (PVS) and electro ejaculation depending upon sacral neural arc intactness, particularly in those with neurological impairment. Electro ejaculation is a more invasive procedure involving placement of a probe containing electrodes in the patient's rectum under anesthesia to minimize patient discomfort and is utilized in patients with a compromised sacral reflex arc. There may be utility in administration of phosphodiesterase type 5 inhibitors, due to their known efficacy in erectile dysfunction. Patients with baseline azoospermia present unique challenges. Often, aspiration and surgical extraction of sperm may be undertaken in these patients. Options for sperm aspiration in such men include percutaneous epididymal sperm aspiration (PESA), and testicular sperm aspiration (TESA). Options for surgical extraction involve testicular biopsy and subsequent testicular sperm extraction (TESE). Cryopreserved semen or sperm can be used at a later date to achieve pregnancy through ART.

Fertility - preservation in prepubertal boys :

Fertility-preservation in prepubertal boys represents unique challenges, as the hypothalamic– pituitary–gonadal axis has not been activated. Currently, there are no widely accepted options for fertility preservation in prepubertal males. For prepubertal patients who have not initiated spermatogenesis, cryopreservation of testicular tissue through either cell suspension or whole tissue may be a possible option for fertility preservation. Tissue can be obtained through the techniques previously mentioned, including TESA, MESA, and TESE. Although prepubertal testicular tissue does not contain mature spermatozoa, it does demonstrate the presence of diploid spermatogonial stem cells, which have the capacity to differentiate into mature cells in an ideal microenvironment. Ideally, this tissue could be auto transplanted at a later time in order to resume spermatogenesis after the completion of gonadotoxic therapy. Unfortunately, no studies in humans have demonstrated the ability to transform immature cryopreserved tissue into functional gametes for later use in ART. Therefore, this procedure is offered at some centers to prepubertal boys only on an investigational basis.

Interdisciplinary care team

The American Society for Reproductive Medicine (ASRM) emphasizes the need for an interdisciplinary care team for these patients. This collaborative team includes oncologists, reproductive endocrinologists, urologists, and surgeons. While oncologists may initially counsel patients on their options for fertility preservation, reproductive endocrinologists and urologists should be consulted as soon as possible after initial diagnosis. Effective communication is crucial between all care providers to ensure optimal and expeditious patient care.

Conclusion

The prevalence of lymphoma in young and reproductive-age patients underscores the need for effective fertility-preservation strategies. As the effects of gonadotoxic chemoradiation are variable depending on the type, dose, and age of the patient, individualized counseling is essential for optimal care of these patients. Well-established FP strategies, such as sperm cryopreservation for males, may not be feasible in all patients. Therefore, there is a significant need for further research into investigational methods, such as IVM and testicular tissue cryopreservation, in order to provide the ability to procreate to all patients afflicted with such cancers as lymphomas.

Reference

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Forthcoming Academic Events:

FERTIPROTECT 2016

27-28 Aug 2016, Bengaluru, India

Asian Society For Fertility Preservation First Conference 18 -19 Nov 2016 Ho Chin Min City Vietnam

Look out for details of regional CMEs on our Website

For Membership: Details and registration forms are available on our website

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