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Fertility Concerns and Preservation for Men [1]

This section has been reviewed and approved by the Cancer.Net Editorial Board [2], 03/2014

Key Messages:

- Some types of cancer treatment can reduce a man?s fertility, which is the ability to have children.
- Temporary or permanent infertility occurs when treatment affects the function of the endocrine system, which includes the glands and other organs that make hormones and produce sperm.
- Before treatment begins, talk with your doctor about the possible fertility-related side effects and options you may have to preserve your fertility.

The inability to have children (infertility) is often a temporary or permanent side effect of some cancer treatments. Before your recommended treatment plan begins, it is important to talk with your doctor or other member of your health care team about how your fertility may be affected and your options for preserving it.

How cancer treatments affect fertility

The endocrine glands and endocrine-related organs, such as the testes, thyroid, and adrenal gland, release hormones that stimulate puberty and control fertility. Fertility problems occur when cancer or cancer treatments damage one of these glands or organs, or alters the part of the brain that controls the endocrine system.

The biggest concern for men is usually whether their treatment plan can damage sperm, affect their ability to make new sperm, or reduce or stop the production of semen (fluid in which sperm travels during sex). These changes increase the chances of infertility.

Cancer treatments that have known or potential fertility-related side effects include:

Chemotherapy. Drugs linked to fertility issues include alkylating agents, such as cyclophosphamide (Neosar), chlorambucil (Leukeran), busulfan (Busulfex, Myleran), procarbazine (Matulane), carmustine (BiCNU), lomustine (CeeNU), mechlorethamine (Mustargen), and melphalan (Alkeran), as well as cisplatin (Platinol).

Radiation therapy. Radiation treatment may kill sperm cells and the stem cells that produce sperm. This includes whole-body radiation that is used during a bone marrow/stem cell transplantation, as well as radiation directed at the abdomen, pelvis, lower spine, testicles (or near the testicles), and the pituitary gland in the brain.

Surgery. Removal of the prostate (which makes semen), bladder, one or both testicles, or the pelvic lymph nodes may decrease fertility or cause infertility, depending on the procedure.

Fertility effects

For some men, cancer treatment leads to permanent infertility. In others, treatment may stop or slow sperm production for years before it returns. In general, men who receive higher doses of radiation therapy or chemotherapy need to wait longer for sperm production to begin again and have a higher likelihood of being permanently infertile.

Other factors, such as existing fertility issues or age, also affect fertility. Younger boys who receive treatment for cancer before undergoing puberty typically may not have as much sperm damage, while men over age 40 are less likely to regain fertility. Stronger cancer treatments, such as preconditioning chemotherapy for bone marrow/stem cell transplants may still cause permanent future infertility in children, though.

It is important to note that although cancer treatments may make it less likely, a pregnancy can still occur. Many doctors recommend that men who had chemotherapy or radiation treatment wait at least two years after treatment before conceiving a child with their partner because their sperm may be genetically damaged and need time to repair. Talk with your doctor about an appropriate time frame for you.

Fertility-preserving options

Most fertility-preserving procedures need to be done before cancer treatment begins. Age, physical and sexual maturation, and relationship status (for example, whether you have a female partner) affect your options. Your doctor and/or a doctor who specializes in fertility issues (reproductive endocrinologist) can help you explore those options, which may include:

Protecting the testes from radiation therapy. It is possible to shield the testes from radiation and prevent sperm damage if the cancer is located in another part of the pelvis.

Sperm banking. This procedure involves freezing and storing semen for in vitro fertilization (IVF) procedures (a process that involves collecting a woman?s eggs and fertilizing them with the stored sperm outside her body, for the purpose of later transferring the embryo back into her body for it to develop). It is an option for most men who experienced puberty. Even if few sperm are preserved, it is still possible to attempt pregnancy through a procedure called intracytoplasmic sperm injection (ICSI). During ICSI, a sperm is injected directly into an egg obtained during IVF procedures.

Testicular sperm extraction and epididymal sperm aspiration. For men who do not have mature sperm in their semen, this procedure involves removing a small amount of tissue from the

testicle. This tissue is examined under the microscope for mature sperm, which can be frozen or used immediately for IVF.

Testicular-tissue freezing. This investigational option for boys who have not experienced puberty involves removing, freezing, and storing testicular tissue, which contains stem cells that may eventually become sperm, before treatment begins. Researchers are studying how to thaw the tissue and surgically put it back into the body to restore sperm-producing capabilities.

Not all of these options are appropriate for everyone. Some fertility-preserving procedures can be costly and stressful during an already stressful time, and their effectiveness varies. You may consider speaking with a counselor [3] for guidance about these decisions, in addition to your doctor.

Learn more about ASCO?s recommendations for preserving fertility [4].

Questions to ask the doctor

Consider asking your doctor or another member of your health care team the following questions before treatment begins:

- What is the risk of temporary or permanent infertility associated with the treatments recommended for my type, stage, and grade of cancer? Are there any other treatments that do not pose as high a risk but are equally effective?
- What options do I have to preserve my fertility?
- Will any of these options postpone the start of my treatment? If so, what effect could this delay have on my chance of recovery (prognosis)?
- Will any of these fertility preservation methods make my cancer treatment(s) less effective?
- Do any of these fertility preservation options increase the risk that the cancer may come back?
- Should I talk with a fertility specialist or a reproductive endocrinologist before starting treatment?
- What clinical trials are available to me?
- Where can I find support for coping with fertility issues?
- Whom can I contact if I need help talking with my spouse or partner about fertility issues?
- How will I know if I am fertile after cancer treatment?

More Information

Moving Forward Video: Fertility for Young Adults with Cancer [5]

Having a Baby After Cancer: Fertility Assistance and Other Options [6]

Preserving Fertility in Children With Cancer [7]

Survivorship [8]

Additional Resources

Fertile Hope [9]

Fertile Hope: Risk Calculator [10]

Several books are also available on this topic; check your library or bookseller.

Links:
[1] http://www.cancer.net/coping-and-emotions/sexual-and-reproductive-health/fertility-concerns-and-preservation-men
[2] http://www.cancer.net/about-us
[3] http://www.cancer.net/node/24699
[4] http://www.cancer.net/node/29921
[5] http://www.cancer.net/node/28071
[6] http://www.cancer.net/node/29111
[7] http://www.cancer.net/node/29101
[8] http://www.cancer.net/node/22
[9] http://fertilehope.org/
[10] http://www.fertilehope.org/tool-bar/risk-calculator.cfm