

# PATIENT'S FACT SHEET

## Cancer and Fertility Preservation

In the United States there are approximately 800,000 reproductive-aged men and women who have cancer, many of whom have concerns about their fertility. Life-saving cancer treatments may reduce fertility by destroying eggs and sperm. The likelihood of reproductive damage depends on the age and sex of the patient and the type and duration of treatment. The most severe damage comes from radiation to the ovaries or testicles and cancer drugs in the "alkylating agent" category such as cyclophosphamide, mechlorethamine, chlorambucil, and melphalan. Although sperm production may recover, eggs do not regenerate; their loss is permanent and premature menopause may occur as a result. The risk of developing premature menopause is lower for younger women than for older women. The first goal is to cure the cancer, even if the treatment causes sterility. However, there are several options that may help preserve fertility before and after cancer treatments.

### Preserving fertility before cancer treatment

- **Men.** Semen samples may be frozen at a sperm bank or fertility center before starting chemotherapy or radiation therapy. Samples can be stored for years and used later for insemination. Sperm counts may be low or absent as a result of the underlying cancer. If sperm counts are low and/or the supply is limited from the frozen sample, the sperm can be used for in vitro fertilization (IVF) and intracytoplasmic sperm injection (ICSI).
- **Women.** If time and circumstances allow, women may be treated with IVF. Embryos created by IVF are then frozen and may be stored for years. Limiting factors for this approach include time, expense, availability of sperm, and possible delay of cancer therapy. If radiation will be administered to the pelvis, the ovaries may be repositioned surgically out of the radiation field. This will reduce the risk that radiation will damage the eggs.
- **Areas of research:**
  - Ovarian suppression before cancer therapy. In theory, suppressing ovarian function may protect the eggs against the adverse effects of cancer treatment. There is

little evidence to support suppression of the ovaries before cancer therapy with birth control pills, GnRH agonists, or other means of hormonal suppression. Freeze eggs. This technology is investigational, expensive, invasive, and may delay cancer treatment. If used, eggs are collected as for IVF but are frozen before they are fertilized. Theoretically, frozen eggs may be stored, thawed, fertilized, and used for embryo transfer. Actual success with this method is very limited, and few babies have been born with this technique.

Freeze ovarian tissue. This experimental technique requires surgery to remove ovarian tissue. Once frozen, tissue may be stored for years. Preliminary studies have shown that reimplanted ovarian tissue may survive and function for a limited time, but no babies have been born using this technique as of 2003.

### Fertility after cancer treatment

- **Men.** It may take up to several years for sperm production to recover after cancer treatment. If sperm counts are consistently low, insemination, IVF, and ICSI may be effective measures for achieving pregnancy. Testicular biopsy may be a way to obtain sperm if sperm are not found in a semen analysis. If sperm cannot be obtained, pregnancy may be possible by using frozen donor sperm. The physician may want to wait up to six months before attempting conception. Some couples may choose to pursue adoption.
- **Women.** After the physician has advised that attempting pregnancy is safe, women may want to consult a fertility specialist to check for damage to reproductive organs. Many women will be able to conceive naturally or with fertility treatments. If significant damage has occurred to the ovaries or uterus, couples may wish to consider egg or embryo donation, a gestational carrier, or adoption to create a family.

