



By Dr. Karine Chung, USC Fertility

Fertility Q&A



Can a woman who is in ovarian failure or menopause as a result of cancer treatment successfully carry a pregnancy and give birth?

It is known that chemotherapy and radiation to the pelvis can dramatically reduce a woman's supply of eggs. Higher doses of certain chemotherapy agents, such as cyclophosphamide, and radiation directly to the pelvic area have been associated with the most damaging effects on the egg supply. The risk of ovarian failure after cancer treatment also increases with the age of the woman at the time she is undergoing treatment, ranging widely from 35 percent in younger women to up to 90 percent in women over age 40.

When a woman experiences ovarian failure or menopause, her egg supply is essentially depleted, and achieving pregnancy with her own eggs becomes highly unlikely if not impossible. This is considered "premature" if it occurs at or before the age of 40.

An effective way to overcome infertility due to depletion of the egg supply is through the use of donor eggs. Egg donation is a type of fertility treatment that allows women who have no eggs of their own, or who have eggs of poor quality, to achieve pregnancy successfully. Because of this technology, tens of thousands of infertile and menopausal women in their forties and fifties have been able to give birth to healthy babies since the first birth from egg donation was reported in 1984.

In the United States alone, well over 15,000 cycles of in vitro fertilization (IVF) using donor eggs are performed each year. At the present time, it is most often used for women who fail to become pregnant after multiple cycles of IVF using their own eggs, for those with premature ovarian failure or elevated levels of follicle-stimulating hormone (FSH), and for those beyond the age of

43. Interestingly, women in their fifties are nearly just as likely to have good outcomes from donor egg IVF as women in their thirties and forties. The basic principle of egg donation is that it is an IVF cycle for two—the egg donor and the recipient (also referred to as the intended parent). The donor undergoes the first part of IVF, including ovarian stimulation and egg retrieval. The eggs are fertilized with the recipient's male partner's sperm (or donor sperm), and the recipient undergoes the embryo transfer, carries the pregnancy, and gives birth.

Egg donors may be *anonymous donors* who are unrelated to the recipients and who donate for altruistic and/or monetary reasons. Anonymous donors are often found through donor agencies (organizations that focus efforts on recruiting and screening potential egg donors) or through the fertility clinic where the recipient is receiving treatment. Alternatively, the donors may be *designated donors* such as a friend or relative identified by the recipient to serve as a donor specifically to help her.

The egg donor is required to undergo a thorough medical examination, which includes a pelvic exam, an ultrasound to examine her ovaries and uterus, and a blood draw to check hormone levels, to test for infectious diseases, and to screen for certain genetic disorders. In addition, she will be evaluated by a psychologist, who will determine whether she is mentally suitable to complete the donation process. Prior to initiating the egg donation cycle, the donor signs legal contracts that waive her rights of ownership and custody to all resulting eggs, embryos, and offspring.

Once the screening is complete and the legal contracts are signed, the egg donor will begin the donation cycle, which typically takes three to six weeks. The key is to synchronize the recipient's cycle with

the donor's cycle. This is achieved by a combination of birth control pills and a medication called lupron (which prevents ovulation and quiets a woman's hormones). Once the women's cycles are synchronized, the donor receives hormone injections to stimulate the growth of multiple eggs (typically 10 to 15), while the recipient takes a combination of estrogen and progesterone to prepare the uterine lining for the implantation. When the donor's eggs are mature, she undergoes egg retrieval, a minor surgical procedure done under conscious sedation. The recipient's partner provides the sperm, and fertilization takes place in the laboratory as with standard IVF.

Embryo transfer is the procedure by which embryo(s) are placed into the recipient's uterus. It is usually scheduled for five days after the egg retrieval. After the embryo transfer is completed, the recipient continues to take estrogen and progesterone through the end of the first trimester of pregnancy. This is because in natural conception the ovaries produce these hormones to support the implantation. At the end of the first trimester (13 weeks of gestation age or about 10 weeks after embryo transfer), the placenta makes all the hormones that are needed, and estrogen and progesterone supplementation is stopped.

Across the nation egg donor cycles are very successful, with an estimated 60 to 70 percent chance of pregnancy. If excess embryos are frozen for future use, when a "fresh cycle" is followed by a "frozen cycle," the success rate with donor eggs goes up to approximately 80 percent. Multiple births, particularly twins, is a common outcome, and the risk of multiples depends on how many embryos are transferred. At the present time, the American Society for Reproductive Medicine recommends that no more than one or two embryos are transferred in any given donor egg cycle.

Any remaining embryos are typically frozen for future transfers.

Egg donation is clearly the most successful fertility procedure available today, and it can be a wonderful option for women who are menopausal after cancer treatment. Women who are infertile or in menopause can successfully carry a pregnancy using eggs from an anonymous or known donor. In women with male partners, donor eggs can be fertilized with the partner's sperm to create embryos that are genetically related to the father. For women without a partner or women in same-sex relationships, donor eggs can be fertilized with donor sperm, and some of these couples may elect to have the cancer survivor's female partner serve as the egg donor.

Donor egg IVF is not ideal for all cancer survivors, however, particularly women who have been advised not to carry a pregnancy for reasons related to their type of cancer (such as some breast cancer survivors) or to their medical conditions (women who have heart problems as a consequence of their chemotherapy). For these reasons it is important that you discuss all fertility questions with both your oncologist and a fertility specialist. 🌸

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