

# Preserving Reproductive Options in Male Cancer Patients

**S**PERM CRYOPRESERVATION offers a viable solution to infertility concerns among men who undergo sterilizing treatments for malignant disease. “With the advent of the newest assisted reproductive techniques, significantly high rates of pregnancy and live births can be achieved using cryopreserved sperm,” says Ashok Agarwal, Ph.D., director of the Cleveland Clinic Andrology Laboratory and Sperm Bank, and director of the Center for Advanced Research in Human Reproduction, Infertility, and Sexual Function at the Glickman Urological Institute and Department of Obstetrics & Gynecology.

Radiological and chemotherapeutic treatment for cancer are proved to have severe and adverse long-term iatrogenic effects on male fertility due to the cytotoxic effects they exert on gametogenesis. “For some men, fertility may return after treatment. However, who will be affected cannot be predicted,” Dr. Agarwal says. “Therefore, as therapeutic advances make cure a realistic goal of cancer treatment, the importance of sperm cryopreservation is increasing.”

Dr. Agarwal recently completed a prospective, 20-year study of 29 men with cancer who cryopreserved their sperm before treatment at The Cleveland Clinic. The study population represented the men who withdrew their samples for assisted reproductive techniques from 1982 to 2001. Nine men had testicular cancer, 12 had Hodgkin’s disease and

eight had other types of cancer.

Semen specimens were transferred to 20 different reproductive centers around the country near to the patients’ places of residence. Overall, 15 of 29 couples achieved pregnancy with assisted reproductive techniques performed on thawed sperm (52 percent), and 11 of those couples had live births (38 percent). None of the infants born had congenital anomalies.

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— Ashok Agarwal, Ph.D.

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The type of malignancy does not appear to affect the outcome of sperm cryopreservation or the success of assisted reproduction. Of the nine testicular cancer patients in The Cleveland Clinic study, six (67 percent) achieved pregnancy and four had live births. Five of 12 couples (42 percent) with Hodgkin’s disease achieved a pregnancy and three had live births (25 percent). Four of eight couples with other cancers achieved pregnancy (50 percent) and four had live births (50 percent). Overall, there was no statistically significant difference in

assisted reproductive techniques (ART) outcomes among different types of cancer.

Of greater importance in determining outcome are the stage and grade of cancer at the time of diagnosis, which affect semen quality, Dr. Agarwal notes. However, freezing and thawing sperm does not affect sperm quality and does not cause incremental damage, even in men with low sperm counts and motility at the time of banking.

“Post-wash motility, which is related to the quality of the semen at the time of freezing, is the most significant predictor of successful ART outcome,” he says. “This may be because the motility of spermatozoa is an independent predictor of its functional, metabolic and DNA integrity.”

Depending on the quality of post-thaw semen, patients may be advised to undergo different forms of ART. Intracytoplasmic sperm injection, which requires only a single sperm to fertilize an egg, has enhanced the interest in sperm cryopreservation over the last 10 years. Dr. Agarwal notes that this trend is reflected at The Cleveland Clinic in the growing number of cancer patients banking sperm prior to treatment.

“Physicians need to discuss the issue of semen preservation with all men of reproductive age with cancer before antineoplastic therapy is started,” Dr. Agarwal says. “Banking spermatozoa prior to treatment offers these men a chance to have their own biological children and is a psychological guarantee for preserving reproductive potential.”

For information about the Cleveland Clinic Sperm Bank or to refer a patient, call 216/444-8182 or 800/553-5056, ext. 48182. To speak with Dr. Agarwal, contact him at 216/444-9485 or 800/553-5056, ext. 49485, or via e-mail at [agarwaa@ccf.org](mailto:agarwaa@ccf.org).

Patients may visit the laboratory’s Web site at [www.clevelandclinic.org/ReproductiveResearchCenter](http://www.clevelandclinic.org/ReproductiveResearchCenter), and click on “Patient Information.” ■

Dr. Ashok Agarwal directs the Cleveland Clinic Andrology Laboratory and Sperm Bank, where male cancer patients are offered the chance to preserve their reproductive potential by banking sperm prior to treatment.

