

UC San Diego Medical Center Participates in \$21 Million Program to Preserve Fertility in Women with Cancer

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Jackie Carr

The University of California, San Diego Medical Center, in collaboration with four leading academic medical centers, will share a \$21 million National Institutes of Health (NIH) grant for a landmark national research, clinical, and education program to preserve the fertility of women being treated for cancer.

"At the moment a woman learns she has cancer, the first overwhelming drive is, 'Save my life-now,'" said Jeffrey Chang, M.D., professor and chief of the Division of Reproductive Endocrinology, and Department of Reproductive Medicine, at UC San Diego Medical Center. "For most women diagnosed with cancer, it's not even in the realm of thought to worry about their future ability to have children. This grant will allow us to explore new methods to preserve a woman's ability to conceive, before she undergoes chemotherapy and radiation."

The reality of cancer is faced by thousands of women each year; for example, last year in the United States, it was projected that approximately 680,000 new cases of cancer would be identified in women, with approximately 8% of these women, or 55,000, under the age of 40. For women undergoing chemo- or radiotherapy for cancer treatment, damage to the ovaries causing infertility is common. Chemotherapeutic drugs are toxic to the eggs and may cause cessation or disruption of ovarian function. Even if menstrual function is regained, there is likely to be a significant loss of eggs that will shorten a woman's reproductive capacity and cause an early menopause.

The new program, called The Oncofertility Consortium, will launch nine projects over a five-year period to develop more effective and timely options for preserving a woman's ability to become pregnant before she begins cancer treatment. An additional goal of the new program is to significantly alter how the medical world cares for female cancer patients and promote a new consciousness to protect their reproductive health.

Currently, the options for women to save their fertility are limited. One is emergency *in vitro* fertilization, which requires a sperm donor in order to fertilize a harvested egg to create an embryo. Another option is harvesting and freezing a mature egg for future fertilization. Both procedures require time and hormone induction that could delay cancer treatment.

"Oncofertility Consortium projects will investigate areas such as the removal, preservation and growth of human follicles containing immature eggs, biomaterials techniques to grow and mature eggs outside the body, and a program to train global scholars to expand the network of specialists responding to this challenge," said Chang. "UCSD Medical Center will lead a National Physicians Cooperative to bring together the participating universities, and more than 20 allied centers, in collecting and preserving ovarian tissue and eggs."

Patients will be recruited from Moores UCSD Cancer Center for the study in early 2008. Cancer patients who participate in the Oncofertility Consortium clinical trial for ovarian tissue preservation will have an ovary surgically removed before they begin cancer treatment. The laparoscopic removal of an ovary does not require a significant delay in cancer treatment beyond one to two days of recovery. Researchers will cryogenically preserve 20 percent of the ovarian tissue for research and 80 percent for the woman to use in the future.

The goal is to thaw the tissue when the woman is ready to have children and mature the follicles in a special gel made from brown algae that supports its three-dimensional development. The mature eggs would then be fertilized and implanted into the woman.

"We're trying to create a total shift in how we interact with female cancer patients to anticipate their lives as survivors and their ability to bear children," said Teresa Woodruff, M.D., Thomas J. Watkins Professor of Obstetrics and Gynecology and chief of the Feinberg School of Medicine's newly created fertility preservation division. "Our goal is to offer more freedom and choice later in life and to improve the quality of life for cancer patients."

Led by Northwestern University's Feinberg School of Medicine, Oncofertility Consortium members will work together on scientific, medical, psychological, legal and ethical issues surrounding the use of advanced reproductive technologies in cancer patients. The consortium also will assess how extraordinary stress affects women's decisions and will develop new strategies to improve the quality of communications with newly diagnosed cancer patients.

In addition to UC San Diego Medical Center and Northwestern University, other Oncofertility Consortium members include University of Pennsylvania, University of Missouri-Columbia, and Oregon Health & Science University. The Consortium is comprised of an interdisciplinary team of biomedical and social scientists, oncologists, pediatricians, engineers, educators, social workers and medical ethicists.

The program is being funded by the National Institutes of Health (NIH) Roadmap for Medical Research, an effort to integrate aspects of different disciplines to address health challenges that have been resistant to traditional research approaches.

In addition to Dr. Chang, Consortium leaders from UC San Diego Medical Center include: Barbara Parker, M.D., Medical Oncologist, Interim Director of Clinical Affairs, Moores Cancer Center, Cheryl Saenz, M.D., Gynecological Oncologist, Sanjay Agarwal, M.D., Reproductive Endocrinologist, Wendy Tayer, Clinical Psychologist, Wayne Bardwell, Ph.D., Director Patient/Family Support Services, Moores Cancer Center, Deborah Wachs, M.D., Reproductive Endocrinologist, Marcus Rosencrantz, M.D., Reproductive Endocrinologist, Alice Park, M.D. Reproductive Endocrinologist, Suzanne Agarwal, R.N. and Pam Malcom, R.N.

Media Contact: Jackie Carr, 619-543-6163