New hopes in fertility preservation of women with cancer

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Abstract
Recent advances in cancer diagnosis and treatment, such as radiation therapy, chemotherapy and bone marrow transplantation, have increased life expectancy in cancer patients. Unfortunately, the treatment with these aggressive methods has side effects and sometimes severe. Toxic substances and ionizing radiation can damage the ovary, endocrine activity and reproductive cycle, and loss of fertility and Premature ovarian failure (POF). Common approaches to treatment of infertility in these individuals include ovarian oophoropexy, embryo and oocyte freezing and freezing of the ovary and ovarian tissue transplantation. Cryopreservation of the embryo and oocyte requires hormonal stimulation to increase the number of oocytes, which, although improving labor productivity, delay the onset of cancer treatment and directly contribute to the development of hormone-dependent tumors. On the other hand, in the freezing of the embryo, there is a need for a sexual partner (the wife or sperm donor) and this treatment is not available in young girls and children. Therefore, in these young patients, in order to preserve fertilization, the ovarian tissue is freezing, and then the transplant is a more practical approach. So far, various methods have been used in ovarian transplantation on different animal and human species. Each of these methods has advantages and disadvantages. In 2004, the first birth of a live human baby was reported from transplantation. However, many unresolved issues remain with regard to maintaining fertility in cancer patients. On the other hand, hopefuuls have been opened to preserve the fertility of cancer patients. The survey aims to update research on fertility strategies and present a summary of the progress made in this field.

Keywords: Artificial gonad, Artificial Oocyte, Fertility preservation, Ovarian Cryopreservation, Ovarian Stem Cells, Ovarian Transplantation