

.....

Present and Future Options for the Preservation of Fertility in Female Adolescents with Cancer

C.C.M. Beerendonk, D.D.M. Braat

Department of Obstetrics and Gynaecology,
University Medical Centre St Radboud, Nijmegen, The Netherlands

Abstract

Fertility and sexuality are important aspects in the quality of life of long-term survivors of cancer. Adolescents in particular are in a very vulnerable period of their lives with respect to future fertility and sexuality. Special attention should be paid to preserve their fertility whenever possible. The gonadotoxic effect of chemotherapy is largely drug- and dose-dependent and is related to age. The effect of radiotherapy is also dependent on dose and age and on the radiation therapy field. The prepubertal ovary is the least susceptible to gonadotoxicity. Ablative regimens for stem cell transplantation have an extremely high risk of ovarian failure. Alternative chemotherapy protocols can reduce long-term gonadotoxicity. Alkylating agents impose the highest risk in causing ovarian failure and should be avoided whenever possible. Up to now, the results of gonadoprotective hormonal therapy have been disappointing and contradictory. Transposition of the ovaries should be considered in each case of planned pelvic or whole body irradiation, where ovarian involvement is unlikely and chemotherapy not necessary. Cryopreservation of preimplantation embryos will seldom be possible in female adolescents due to the lack of a stable relationship with a male partner. Cryopreservation of mature and immature oocytes (necessitating in vitro maturation) is still assumed not to be safe for the offspring. Cryopreservation and transplantation of ovarian tissue seems to be the most promising way of future fertility preservation in female adolescents. At present, it is in its early experimental stage. Its safety and possibilities for fertility preservation in humans are not proven as yet. Additionally, technical and ethical issues need to be addressed. The counseling of female adolescents who are facing the threat of cancer needs careful consideration with regards to the psychosocial impact of the treatment and its consequences. Special attention should be paid to aspects of future quality of life, in particular: fertility and sexuality.