Pregnancy Outcome in Male and Female survivors of childhood cancer group

This issue highlights the recent publication from largest childhood cancer survivor study (CCSS) with regards to the pregnancy outcome in child hood cancer survivors.

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Fertility counseling and offering options for preserving fertility in this age group depends on whether the child is pre-pubertal or post-pubertal. In pre-pubertal age group, discussion about fertility can be a challenging situation not only for patient but also for treating oncologist and reproductive medicine specialist. The options available at this age group are limited and are mostly offered at present in research settings. Preservation of ovarian or testicular tissue is the options mainly given in this sub-group of patients. In post-pubertal children, the options are same as given to adults in the form of oocyte cryopreservation, sperm cryopreservation, ovarian tissue cryopreservation, and medical therapy with GnRH agonists.
Even if the fertility cannot be preserved, discussion and educating children and their parents about potential risk for infertility is important. In this age group, education at diagnosis may not be sufficient; re-enforcement of discussion at end of therapy and in late effect survivor clinic may be needed depending on survivor's needs and developmental stage.

Compiled by

Dr. Puneet R Arora
MBBS, MS, MRCOG(London), DFFP (UK), M.Sc(UK)

Senior Consultant – Infertility/Oncofertility
Nova IVI, New Delhi

Pregnancy after chemotherapy in male and female survivors of childhood cancer treated between 1970 and 1999: a report from the Childhood Cancer Survivor Study cohort- Lancet Oncology, 2016

Eric J Chow, Kayla L Stratton, Wendy M Leisenring, Kevin C Oeffinger, Charles A Sklar, Sarah S Donaldson, et al

Methods: The data from a subset of the Childhood Cancer Survivor Study cohort, which followed 5-year survivors of the most common types of childhood cancer who were diagnosed before age 21 years and treated at 27 institutions in the USA and Canada between 1970 and 1999, were studied.

The doses of 14 alkylating and similar DNA interstrand crosslinking drugs from medical records were analyzed. The independent effects of each drug and the cumulative cyclophosphamide equivalent dose of all drugs in relation to pregnancies and live births occurring between ages 15 years and 44 years were analyzed. The siblings of survivors were used as a comparison group.

Findings: There were 10,938 survivors and 3949 siblings. After a median follow-up of 8 years from cohort entry or at age 15 years, whichever was later, 4149 (38%) survivors reported having or siring a pregnancy, of whom 3453 (83%) individuals reported at least one livebirth. After a median follow-up of 10 years, 2445 (62%) siblings reported having or siring a pregnancy, of whom 2201 (90%) individuals reported at least one livebirth. Overall, survivors had a decreased likelihood of siring or having a pregnancy versus siblings (male survivors: hazard ratio [HR] 0.63, 95% CI 0.58–0.68; p<0.0001; female survivors: 0.87, 0.81–0.94; p<0.0001) or of having a livebirth (male survivors: 0.63, 0.58–0.69; p<0.0001; female survivors: 0.82, 0.76–0.89; p<0.0001)

In male survivors, reduced likelihood of pregnancy was associated with upper tertile doses of cyclophosphamide, ifosfamide , procarbazine and cisplatin . Cyclophosphamide equivalent dose in male survivors was significantly associated with a decreased likelihood of siring a pregnancy as compared to females. In female survivors, only busulfan and doses of lomustine equal to or greater than 411 mg/m2 were significantly associated with reduced pregnancy. Results for live birth were similar to those for pregnancy.

Conclusion: The findings from this study have suggested that greater doses of contemporary alkylating drugs and cisplatin were associated with a decreased likelihood of siring a pregnancy in male survivors of childhood cancer. However, these findings have provided reassurance to most female survivors treated with chemotherapy without radiotherapy to the pelvis or brain, given that chemotherapy- specific effects on pregnancy were generally few. Nevertheless, consideration of fertility preservation before cancer treatment remains important to maximize the reproductive potential of all adolescents newly diagnosed with cancer.