FERTILITY OF FEMALES AFTER TREATMENT FOR CHILDHOOD CANCER. A REPORT FROM THE CHILDHOOD CANCER SURVIVOR STUDY (CCSS)

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Abstract:

Background: Determine the proportion of female childhood cancer survivors with impaired fertility and evaluate impact of treatment on likelihood of pregnancy. **Methods:** 5665 CCSS participants and 1,735 siblings were classified as surgically sterile for contraceptive purpose vs. non-contraceptive purpose, impaired fecundity (ongoing attempts to become pregnant for a period of one year without success or use of medication to help achieve a pregnancy), or fecund. Cox proportional hazard modeling was used to estimate the relative risk of pregnancy (RR) for survivors versus siblings, controlling for education level, marital status, age at primary diagnosis, race/ethnicity, smoking status and fecundity group. Additional models among survivors, examine the impact of treatment variables on pregnancy. **Results:** Survivors were 6-30 yrs from cancer diagnosis (mean-16.3 yrs) and 15-44 yrs of age at the time of study (mean-25.1 yrs). 516 (9.1%) survivors or their partners were surgically sterile, 415 (7.3%) had impaired fecundity and 4734 (83.6%) were fecund. Among fecund subjects, the RR for pregnancy was 0.9 (p=0.0004) for survivors compared to siblings. The RR was 0.8 (p=0.12) among subjects with impaired fecundity. Multivariate analysis demonstrated that ovarian RT dose $\leq$ 250 cGy with a pituitary RT dose > 4000 cGy (RR=0.4; p=0.0005) or ovarian RT dose > 250 with a pitutary RT dose $\leq$ 4000 cGy (RR= 0.3 p<0.0001) or a pituitary RT dose > 4000 cGy (RR=0.2; p=0.01) and increasing AAS (1st tertile RR=0.9; p=0.4); 2nd tertile RR= 0.8; p=0.04; 3rd tertile RR=0.8; p=0.04) were independently associated with impaired fertility. In the multivariate analysis, neither a history of oophoropexy nor prior treatment with cis-platinum, cytosine arabinoside, doxorubicin or vinblastine remained statistically significant. **Conclusions:** Female survivors of childhood cancer have impaired fertility due in part to ovarian RT dose and increasing AAS.

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