FECUNDITY OF MALES AFTER TREATMENT FOR CHILDHOOD CANCER. A PRELIMINARY REPORT FROM THE CHILDHOOD CANCER SURVIVOR STUDY (CCSS)

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Abstract:

Background: Determine the proportion of male (M) survivors with impaired fecundity (IF).

Methods: 6,555 CCSS M participants and 1,606 M siblings (S) were classified as surgically sterile (SS) for contraceptive purpose, SS for non-contraceptive purpose, IF (ongoing attempts to become pregnant for a period of one year without success or use of medication to help achieve a pregnancy), or fecund (F). Odds ratios (OR) were estimated using logistic regression, controlling for education level, marital status, age at baseline questionnaire, race/ethnicity and smoking status.

Results: M were 6-29 years from cancer diagnosis (mean-16.3 years) and 15-44 years of age at the time of study (mean-25.4 years). 331 (5.0%) M or their partners were SS, 487 (7.4%) had IF and 5,737 (87.5%) were F. The OR (95% confidence interval (CI)) for being F was 0.66 (95% CI, 0.54-0.80) (p<0.0001) compared to F MS. Among M, the OR for IF was 2.60 (95% CI, 1.97-3.42) (p<0.0001) compared to F MS. The OR for IF was increased among those with a testicular (T) radiation dose (RD) of 0.1-499 cGy (OR=1.42;95% CI 1.07-1.89; p=0.015), 500-599 cGy (OR=3.16;95% CI 1.48-6.72; p=0.0028), 600-1499 cGy (OR=2.53;95% CI 1.26-5.09; p=0.009) and ≥2400 cGy (OR=3.04;95% CI 1.39-6.64; p=0.0054), pituitary (P) RD of 0.1-499 cGy (OR=1.89;95% CI 1.41-2.55; p<0.0001), CCNU (OR=2.14;95% CI 1.25-3.66; p=0.0054), cyclophosphamide (OR=1.56;95% CI 1.23-1.97; p=0.0002), nitrogen mustard (OR=2.88;95% CI 2.08-4.00; p<0.0001), procarbazine (OR=2.97;95% CI 2.24-3.93; p<0.0001), vinblastine (OR=2.07;95% CI 1.41-3.04; p=0.00022), vincristine (OR=1.90;95% CI 1.45-2.49; p<0.0001) and melphalan (OR=2.43;95% CI 1.09-5.43; p=0.03). The OR for IF increased with increasing alkylating agent score (AAS) (1st tertile OR=1.70;95% CI 1.19-2.43; p=0.0035; 2nd tertile OR=2.63;95% CI 1.82-3.81; p<0.0001; 3rd tertile OR=3.42;95% CI 2.41-4.86; p<0.0001). Multivariate analysis demonstrated that the combination of P ≥ 500 cGy and T ≥ 500 cGy (OR=2.65;95% CI 1.44-4.86; p=0.0017) and increasing AAS (1st tertile OR=1.56;95% CI 1.04-2.34; p=0.031; 2nd tertile OR=2.22;95% CI 1.43-3.44; p=0.00036; 3rd tertile OR=2.72;95% CI 1.74-4.25; p<0.0001) were associated with IF.

Conclusions: M have IF due in part to TRD and PRD and increasing AAS.