

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  $\geq 2400$  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) (1<sup>st</sup> tertile OR=1.70;95% CI 1.19-2.43;  $p=0.0035$ ; 2<sup>nd</sup> tertile OR=2.63;95% CI 1.82-3.81;  $p < 0.0001$ ; 3<sup>rd</sup> tertile OR=3.42;95% CI 2.41-4.86;  $p < 0.0001$ ). Multivariate analysis demonstrated that the combination of  $P \geq 500$  cGy and  $T \geq 500$  cGy (OR=2.65;95% CI 1.44-4.86;  $p=0.0017$ ) and increasing AAS (1<sup>st</sup> tertile OR=1.56;95% CI 1.04-2.34;  $p=0.031$ ; 2<sup>nd</sup> tertile OR=2.22;95% CI 1.43-3.44;  $p=0.00036$ ; 3<sup>rd</sup> 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.