

SUN SENSITIVITY, SUN EXPOSURE AND RISK OF SKIN CANCER IN A COHORT OF ADULT SURVIVORS OF CHILDHOOD AND ADOLESCENT CANCER. A REPORT FROM THE CHILDHOOD CANCER SURVIVOR STUDY (CCSS)

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Background: Skin cancer has been associated with exposure to ionizing radiation, but the interaction between radiation treatment (RT) and subsequent ultraviolet radiation exposure has not been described.

Methods: The CCSS is a retrospective cohort study designed to determine late effects in children and adolescents diagnosed with cancer. Eligibility criteria for cohort are: subjects diagnosed between 1970-1986 at one of 26 consortium centers, before 21 years of age, and survived at least five years after diagnosis. Data regarding skin cancer, sun sensitivity and past sun exposure was collected on 9298 survivors. Median age at follow-up was 31 years (range:17-54).

Results: In CCSS, skin cancer accounts for 41% of all confirmed subsequent cancers. To date, 457 subjects have reported 1,157 pathology confirmed occurrences of skin cancer. Of these, 95% were basal cell carcinoma (BCC), 3% squamous cell carcinoma, and 2% melanoma. Multiple occurrences of BCC were seen in 175 (43%) cases, 118 had 2-4 BCC, 113 had 5 or more BCC. Sun sensitivity, past sun exposure, and cancer treatment were assessed as possible risk factors using multiple logistic regression analysis. Statistically significant risk factors for the development of a BCC were: RT [no vs. yes (OR=6.9, 95% CI=4.4-10.8)]; age at survey [< 35 years vs. 35-44 years (OR=2.8, 95% CI=2.1-3.7) and vs. 45+ years (OR=8.2, 95% CI=5.5-12.1)]; skin color [pale white vs. light tan (OR=0.7, 95% CI=0.5-0.9), and vs. dark brown (OR=0.2, 95% CI=0.1-1.7)]; and number of sunburns in childhood [never vs. 1-2 times (OR=1.3, 95% CI=0.8-2.2) and vs. 3+ times (OR=2.2, 95% CI=1.3-3.7)]. No evidence for an additive interactive effect between radiation exposure and skin color (p=0.19) or with previous sunburn in childhood (p=0.24) was found.

Conclusion: Regardless of sun sensitivity and previous sun exposure, survivors who receive RT need to practice healthy sun behavior throughout their lifetime.

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