

DIABETES MELLITUS IN LONG-TERM SURVIVORS OF CHILDHOOD CANCER: A REPORT FROM THE CHILDHOOD CANCER SURVIVOR STUDY (CCSS)

Lillian R Meacham, MD 1, Nora Gimpel 2, Rebecca Olvera 2, John A Whitton, PhD 3, Charles A Sklar, MD 4, Leslie L Robison, PhD 3 and Kevin C Oeffinger, MD 2. 1Pediatrics, Emory University - AFLAC Cancer Center, Atlanta, GA; 2Family Practice and Pediatrics, UT Southwestern, Dallas, TX; 3Biostatistics and Epidemiology, University of Minnesota School of Medicine, Minneapolis, MN and 4Pediatrics, Memorial Sloan Kettering Cancer Center, New York, NY.

Background: Rates of obesity and diabetes in children and adolescents are increasing nationally. An increased prevalence of obesity and insulin resistance has been reported in some subpopulations of childhood cancer survivors.

Objective: To determine the prevalence of self-reported diabetes mellitus in long-term survivors of childhood cancer and a sibling comparison group. In addition, to identify factors, including cancer types and treatment exposures, associated with diabetes.

Design/Methods: CCSS is a cohort of 5-year survivors of pediatric malignancy who were diagnosed from 1970-1986 and siblings. The primary outcome for this analysis was a self-reported current diagnosis of diabetes that was being treated either with insulin or oral medications.

Results: Of 13,177 survivors living at the time of enrollment, 125 (0.95%) currently had diabetes. In comparison, of 3,846 siblings, 23 (0.59%) were diabetic. Adjusting for age, gender, and race, the odds ratio (OR) and 95% confidence intervals (95% CI) for survivors having diabetes, in comparison with siblings, was 1.8 (95% CI=1.1-2.9, P=0.02). Cancer types associated with a statistically significant increased risk of diabetes included: leukemia (OR=2.2; 95% CI=1.2-4.1), Wilms' tumor (OR=5.2; 95% CI=2.4-11.0), and neuroblastoma (OR=6.9; 95% CI=3.1-15.1). Treatment factors significantly associated with diabetes include: abdominal radiation (OR=2.9; 95% CI= 1.8-4.8, P<0.0001) and total body irradiation (OR=2.5; 95% CI= 1.1-6.0, P=0.04). In patients with leukemia if treated with TBI the risk of developing Diabetes was OR=9.2, 95% CI=3.7-23.1, p<0.0001) Cancer therapy that was not associated with diabetes included cranial radiation, treatment with corticosteroids or corticosteroids in combination with L-asparaginase.

Conclusions: Diabetes mellitus, though an infrequent outcome, is more common in childhood cancer survivors than a sibling comparison group, particularly in those who were treated with either abdominal or total body irradiation. The pathogenesis of the Diabetes Mellitus observed in these subjects remains to be elucidated.

No information to disclose