

Title: USING THE CUMULATIVE ILLNESS RATING SCALE TO CHARACTERIZE THE BURDEN OF CHRONIC CONDITIONS AMONG CHILDHOOD CANCER SURVIVORS AND TO PREDICT MORTALITY

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Background/Objectives: A uniform system of comorbidity classification in childhood cancer survivors is essential to enumerate and determine impact of disease burden on health outcomes, and permit comparisons across populations. We aimed to characterize burden of disease in adult childhood cancer survivors and siblings using the Cumulative Illness Rating Scale for Geriatrics (CIRS-G), and determine associations between disease burden and incident mortality. **Design/Methods:** Baseline questionnaires were completed by 14,355 CCSS participants (53.7% male, mean[standard deviation] age 23.1[7.8], age at diagnosis 7.8[5.8] years) and 4,022 siblings (48.2% male, age 26.2[9.2] years) and were used to determine CIRS-G scores. The CIRS-G summarizes disease burden across 14 organ-systems, with items scored 0-4 (no-extremely severe problem). It has been used to characterize morbidity among elderly individuals without cancer and survivors of adult cancer, but not among childhood cancer survivors. CIRS-G score outcomes were analyzed as total number of categories scored >0, total score, total score/number of categories scored >0 (severity index), number of grade 3, and number of grade 4 categories. Scores were compared between survivors/siblings with Chi-squared statistics. Associations between disease burden and incident mortality were modeled with Cox Proportional Hazards Regression, adjusted for age and sex. **Results:** Survivors had higher means for all score metrics than siblings (p 's < 0.001) for total number of categories (3.48[2.24] vs. 2.84[2.06]), total score (6.67[5.43] vs. 4.26[3.74]), severity index (1.74[0.97] vs. 1.27[0.69]), number of grade 3 (0.51[0.75] vs. 0.18[0.46]), and number of grade 4 (0.14[0.40] vs. 0.04[0.21]) conditions. Risk of mortality increased by 7% (95%CI 6%-8%) for each point increase in total score, 35% (95%CI 29%-42%) for each point increase in severity index, and 44% (95%CI 38%-51%) for each grade 3 or 4 condition. **Conclusion:** Survivors have a greater burden of disease, characterized by higher summary scores on the CIRS-G than siblings. Scores on the CIRS-G are predictive of incident mortality.