Racial/Ethnic Differences in Neurocognitive, Emotional and Quality of Life Outcomes in Adult Survivors of Childhood Cancer: A Report from the Childhood Cancer Survivor Study (CCSS)


Background: Survivors are at risk of impaired neurocognitive/emotional functioning and health related quality of life (HRQOL). The impact of CNS-directed therapy by race/ethnicity has not been reported.

Methods: Analyses included 12,257 ≥5-yr survivors of childhood cancer: median age at follow-up 31.2 yrs (range 16.1-54.1), 490 non-Hispanic Black (NHB), 725 Hispanic (H) survivors and 2994 siblings. Self-reported neurocognitive (working memory, task efficiency, emotional regulation, organization), emotional (depression, anxiety, somatization) and HRQOL outcomes were evaluated using the CCSS Neurocognitive Questionnaire, BSI-18 and SF-36. Impact of cranial radiotherapy (CRT) was investigated using general linear models adjusted for clinical/demographic factors to estimate differences in mean scores between survivors and siblings within racial/ethnic stratum. The magnitude of differences for NHBs and Hs were compared to those of non-Hispanic Whites (NHW).

Results: Among non-CRT exposed survivors, no significant differences were observed between NHB, H and NHW for all neurocognitive, emotional, and HRQOL outcomes. Among CRT exposed survivors, while there were no significant differences for neurocognitive outcomes by race/ethnicity, mean scores for depression differed between H survivors vs siblings (49.9 vs 46.5, p<0.001), which was greater than NHW survivors vs siblings (49.2 vs. 47.7, p<0.001; p comparing differences in means between H and NHW =0.047). Survivor-sibling differences in mean HRQOL scores for social functioning for NHB (-7.70, p=0.02) and H (-6.27, p=0.01) survivors exposed to CRT were greater than for NHW (-1.48).

Conclusions: After CRT exposure, there were no differential effects on neurocognitive outcomes based on race/ethnicity. However, minority survivors who received CRT had increased risk for depression and reduced social function. The role of environmental and socio-economic factors in helping survivors recover from CRT exposure should now be investigated.