

Wide Range Achievement Test (WRAT-5; word reading, math computation) were administered at baseline and one year follow up. Mean age of participants was 51.6 (SD = 14.4). Most patients had completed high school or more education (89.7%) identified as male (56.3%) and were white (75%). Diagnoses included lymphoblastic leukemia (n=2), diffuse large B-cell lymphoma (n=7), follicular lymphoma (n=3), mantle cell lymphoma (n=1), metastatic sarcoma (n=1), myxoid liposarcoma (n=1), and synovial sarcoma (n=1).

Results: Mean cognitive scores (adjusted for age) were calculated. At baseline, mean cognitive performance was average across domains, except for inhibitory control, which was in the low average range. At day 100, mean cognitive performance showed the same pattern as baseline. At day 180, mean scores in all domains were within the average range. At one year, all scores were within the average range or higher, although only two participants have completed the one-year follow-up, as data collection is ongoing. One participant died due to neurotoxicity following treatment, thus did not complete follow-up evaluations.

Conclusions: Overall, cognitive performances were broadly within normal limits in the sample and demonstrated relatively stable performance over time. Interestingly, baseline and day 100 mean inhibitory control was an area of relative weakness across participants, which is consistent with prior research. CAR T-cell therapy is reserved for refractory malignancies; thus, patients may have executive functioning deficits at baseline due to prior treatments. One patient died due to neurotoxicity. Overall, although severe cognitive changes and neurotoxicity have been observed as a risk of CAR T-cell therapy, this may be a distinct adverse event rather than the norm, as surviving patients in our sample remained cognitively stable following treatment. Although a unique and important population of study, our sample is limited due to its size. Results should be considered preliminary, and data collection is ongoing.

Categories: Cancer

Keyword 1: cancer

Keyword 2: cognitive functioning

Keyword 3: neuro-oncology

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8 Self-Reported versus Performance-Based Cancer-Related Cognitive Impairment in Older Women with Nonmetastatic Breast Cancer

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Objective: The Functional Assessment of Cancer Therapy-Cognitive scale (FACT-Cog) is one of the most frequently used patient-reported outcome (PRO) measures of cancer-related cognitive impairment (CRCI) and of CRCI-related impact on quality of life (QOL). Previous studies using the FACT-Cog found that >75% of women with breast cancer (BCa) experience CRCI. Distress tolerance (DT) is a complex construct that encompasses both the perceived capacity (i.e., cognitive appraisal) and the behavioral act of withstanding uncomfortable/aversive/negative emotional or physical experiences. Low DT is associated with psychopathology and executive dysfunction. We previously found that women with BCa with better DT skills reported less CRCI on the FACT-Cog. However, this relationship has not been tested using a performance-based cognitive measure. Therefore, the aims of this study were to: (1) assess the relationship between the FACT-Cog and the Telephone Interview for Cognitive Status (TICS), a performance-based cognitive measure; and (2) test whether the association between DT and CRCI (using the FACT-Cog) was replicated with the TICS.

Participants and Methods: Participants completed the Distress Tolerance Scale (DTS), the FACT-Cog, and the TICS after undergoing BCa surgery and prior to starting adjuvant therapy [101 women, age >50 years, M(SD)= 61.15(7.76), 43% White Non-Hispanic, 34.4% White Hispanic, 10.8% Black, with nonmetastatic BCa, 55.4% lumpectomy, 36.6% mastectomy; median 29 days post-surgery].

Results: Although there was a significant correlation between the TICS total score and the FACT-CogQOL subscale ($r = 0.347$, $p < 0.001$), the TICS total score was not correlated with scores on the FACT-Cog perceived cognitive

impairment (CogPCI), perceived cognitive abilities (CogPCA), or comments from others (CogOth) subscales. However, the TICS memory item, a 10-word list immediate recall task, had a weak statistically significant correlation with CogPCI ($r = 0.237, p < 0.032$), CogOth ($r = 0.223, p < 0.044$), and CogPCA ($r = 0.233, p < 0.036$). Next, the sample was divided based on the participant's score on TICS memory item (i.e., $<$ vs. $>$ sample mean of 5.09). Results of independent samples t-tests demonstrated significant differences in mean scores for CogPCI, $t(80) = -2.09, p = 0.04, M_{diff} = -7.65$, Cohen's $d = 0.483$, and CogQOL, $t(80) = -2.57, p = 0.01, M_{diff} = -2.38$, Cohen's $d = 0.593$. A hierarchical linear regression found that DTS subscale and total scores did not significantly predict performance on the TICS. However, DTS continued to be a significant predictor of poorer FACT-Cog PCI scores while controlling for TICS scores.

Conclusions: We found a weak relationship between self-reported cognitive impairment and objective cognitive performance (TICS). However, greater self-reported PCI and its impact on QOL was found in participants who scored below the sample mean on a recall task from the TICS. Although perceived ability to tolerate distress continued to predict self-reported PCI on the FACT-Cog, it did not predict overall performance on the TICS. Therefore, responses on the FACT-Cog may be more representative of an individual's ability to tolerate distress related to perceived CRCI than actual overall cognitive ability or impairment.

Categories: Cancer

Keyword 1: breast cancer

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Keyword 3: self-report

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9 Exploration of Predictors of Cognitive Flexibility Performance in Long-Term Survivors of Childhood Brain Tumor

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Objective: Survivors of childhood brain tumor are historically thought to perform worse on measures of executive functioning, including cognitive flexibility (CF; e.g., set-shifting), when compared to their peers. Commonly utilized measures, such as subtests from the Delis-Kaplan Executive Function System (D-KEFS), have baseline conditions that attempt to measure performances independent of but critical for CF tasks (e.g., motor speed on trail making, letter fluency on verbal fluency). However, in research, conditions measuring CF are often included in analyses without accounting for these important baseline conditions. The aim of the current study is to explore differences in CF performance between survivors and their healthy peers when controlling for baseline conditions. The variance explained by each baseline condition on CF condition performance in survivors is also explored.

Participants and Methods: A sample of 107 long-term survivors of childhood brain tumor ($M_{age}=21.81, SD=5.99, 50.5\%$ female) and 142 healthy controls ($M_{age}= 23.25, SD=6.61, 61.3\%$ female) were administered the Trail Making Test (TMT), Color-Word Interference (CWI), and Verbal Fluency (VF) subtests from the D-KEFS. For the TMT, baseline conditions include visually scanning for a target, motor speed, and letter and number sequencing. For the CWI subtest, baseline conditions include rapid color naming, word reading, and reading words in a different colored ink. On the VF subtest, baseline conditions include rapidly naming words with a specific letter and from a specific category. An analysis of covariance was conducted for each subtest to determine if groups differed in performance on the CF condition (i.e., Number-Letter Switching, Inhibition/Switching, Category Switching Accuracy) when controlling for baseline conditions. In survivors only, linear regressions investigated the amount of variance explained by each baseline condition on the CF conditions of each subtest.

Results: Groups did not differ in CF performance of each subtest when controlling for baseline conditions ($ps > .10$). Across subtests, baseline conditions significantly predicted CF performance in survivors. On the TMT, Letter Sequencing ($p=.003, unique-R^2=.05$), but not Visual Scanning, Number Sequencing, or Motor Speed, was a significant predictor of Number-Letter Sequencing performance ($p<.001, R^2=.50$). On the CWI subtest, Word Reading ($p<.001, unique-R^2=.09$)