

$F(2,25) = 26.957, p < .001$), executive functions (CW Conditions 3 and 4: $F(1.445,25) = 11.383, p < .001$ and $F(1.381,25) = 7.687, p = .004$, respectively), verbal fluency (VF Condition 3 correct and accuracy: $F(2,25) = 6.419, p = .003$ and $F(2,25) = 153.076, p < .001$, respectively), and verbal learning (HVL Total Recall (alternate forms used at each time point): $F(1.563,23) = 6.958, p = .004$). Score progression graphs are presented. Performance on all other cognitive measures did not significantly change following treatment.

Conclusions: To our knowledge, this is the first prospective study examining neuropsychological test performance following ibogaine use at post-treatment and one-month post-treatment time points. Our results indicated that several cognitive domains improved either post-treatment or one-month post-ibogaine treatment, suggesting ibogaine's therapeutic potential for cognition in the context of traumatic brain injury and mood disorders. Potential explanations include neuroplastic changes, reduction of PTSD and mood-related effects on cognitive functioning, and practice effects. While we found no evidence of negative cognitive consequences for up to one-month post-single-ibogaine treatment, further study of this substance is necessary to clarify its clinical utility and safety parameters.

Categories: Acquired Brain Injury (TBI/Cerebrovascular Injury & Disease - Adult)

Keyword 1: cognitive functioning

Keyword 2: traumatic brain injury

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23 Developmental Outcomes and Educational Service Utilization for Pediatric Brain Tumor Survivors Treated with Proton Radiotherapy Prior to Four Years of Age

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Objective: Pediatric brain tumor survivors treated with proton radiation therapy (PRT) prior to 4 years of age are at high risk for poor

cognitive and developmental outcomes. This cross-sectional study examined developmental outcomes and educational service utilization at follow-up in a cohort of pediatric survivors treated with PRT before the age of 4 years.

Participants and Methods: A total of 46 patients (58.7% female, 93.5% White) were assessed using age-appropriate measures for executive, behavioral, and adaptive functioning. Mean age at PRT was 2.4 years (SD=0.9, range 1.0-3.9 years); mean age at follow-up was 7.0 years (SD=4.8, range 2.0-18.6 years). Mean follow-up interval was 4.57 years (SD=4.52, range 0.9-16.2 years). Diagnoses included ependymoma (n=26, 54.2%), medulloblastoma (n=7, 14.6%), craniopharyngioma (n=4, 8.3%), and a few other tumor types. Infratentorial tumors were most common (69.6%). Treatment included prior surgical resection (93.5%) and chemotherapy (60.9%). Posterior fossa syndrome was present in 10.9% (n=5). PRT field consisted of focal (n=41, 89.1%) or craniospinal irradiation (CSI) (n=5, 10.9%). The impact of demographic, diagnostic, and treatment-related factors was examined, including age at PRT, gender, time interval since PRT, radiation field, and tumor location, on intelligence quotient (IQ), adaptive skills, and executive functioning. Rates of impairment (T-scores >65) were calculated. The utilization of educational services was determined.

Results: Mean IQ (SS = 97.6, SD=16.3), as well as mean global executive functioning (Mean T=53.4, SD=11.1) and adaptive skills (Mean SS = 92.5, SD=21.4), as assessed by parent rating scales (BRIEF; SIB), were in the average range. Despite mean scores being within the average range, a large proportion of patients demonstrated difficulties with social withdrawal (28.3%) and activities of daily living (28.3%) (BASC), and global executive dysfunction (17.4%) (BRIEF). Younger age at PRT was associated with lower global adaptive skills at follow-up ($r=.39, p=.005$), better activities of daily living ($r=.53, p<.001$), lower social skills ($r=.43, p=.002$), and more hyperactivity ($r=-.37, p=.008$), but not aggression, anxiety, depression, somatization, atypical behaviors, withdrawal, or attention problems. Longer follow-up interval was correlated with better activities of daily living ($r=.46, p<.001$), but more anxiety ($r=.39, p=.006$). Gender, SES, radiation field, history of hydrocephalus, and location of tumor were not significantly related to primary outcome variables. Posterior fossa syndrome was

associated with lower adaptive skills ($t=2.90$, $p=.003$) and IQ ($t=2.02$, $p=.026$). Of those enrolled in school, 59% received special education services and/or accommodations (IEP $n=18$, Early Intervention $n=6$; 504 Plan $n=3$).

Conclusions: Overall, PRT before age 4 years was associated with difficulties with withdrawal, adaptive skills, and executive functioning. Younger age at PRT was associated with lower adaptive functioning, lower social skills, and higher hyperactivity, but not with IQ, attention, mood, or anxiety. While a longer time interval since treatment was associated with improvement in activities of daily living, anxiety was increased, suggesting some late emotional effects. Furthermore, posterior fossa syndrome after surgery was related to lower adaptive skills and IQ. Attention problems were not indicated. Approximately half received school services/accommodations. Young children treated with PRT require proactive support and services to foster their developmental outcomes.

Categories: Cancer

Keyword 1: adaptive functioning

Keyword 2: brain tumor

Keyword 3: pediatric neuropsychology

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24 Mindfulness-based cognitive therapy enhances executive control in recurrent depression in a randomized wait-list controlled trial

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Objective: Adults with recurrent depression have been shown to have cognitive deficits also while in remission. Thus, it has been suggested that with a chronic course of depression, poorer executive control can be a vulnerability factor for depressive relapse. This has led to research on how cognitive remediation training can protect

against recurrent depressive episodes. Findings indicate that such training has short term effects on cognitive functioning, and small effect on depression symptoms. Less focus has been on how “standard” psychotherapy can have positive effects on executive and attentional control. Mindfulness-based cognitive therapy (MBCT) has been shown to be as effective as antidepressant medication in preventing relapses of depressive episodes. Mindfulness training in healthy samples seems to improve executive and attentional control. However, the few studies of MBCT in recurrent depression show mixed effects on executive and attentional control. As far as we know, no prior study has investigated the effect of MBCT in recurrent depression with the revised version of the attention network test (ANT-R). In a randomized controlled trial, we expected that the MBCT group would show enhanced executive control and lower levels of attentional fluctuations than the wait-list controls (WLC) from pre (T0) to post (T1) treatment. We further investigated if positive effects of MBCT on executive and attentional control were associated with reduction in depression symptoms.

Participants and Methods: Adults with recurrent depression in partial or full remission ($N = 64$) were randomized to MBCT or WLC. In the MBCT and WLC groups, 25 and 29, respectively, performed the ANT-R at T0 and T1. The attention network reaction time scores of executive control, alerting, and orienting were calculated in addition to attention fluctuations scores of intra-individual reaction time variability (IIVRT) and exgaussian-mean of longer reaction times (TAU). Self-reported depression symptoms were measured with BDI-II. The two groups were compared at baseline on full-scale IQ (WASI), executive control (D-KEFS Stroop), and processing speed (D-KEFS TMT).

Results: The MBCT and WLC groups did not differ significantly in age or gender distribution, education, full-scale IQ or in baseline executive and attentional control as measured with the ANT-R, Stroop and TMT. The MBCT group showed a higher efficiency in conflict detection as measured with the executive control score from T0 to T1 compared to the WLC. This positive effect of MBCT on executive control was independent from the greater reductions in depression symptoms in the MBCT group compared to in the WLCs. However, reduction in depression symptoms at T1 was associated with enhanced efficiency in responding to alerting cues in conflict detection. No effects of MBCT