

Preliminary Assessment of Cognitive Changes in Pediatric Cancer Survivors After a Neurocognitive Intervention

Maddie Clemmer¹, Donna Romack², Scott Coven^{1,2}, Sarah Koch^{1,3}, Tammy Sajdyk^{1,4}

¹Indiana University School of Medicine, Indianapolis, IN; ²Division of Pediatric Hematology Oncology, Indianapolis, IN; ³Department of Neurology, Indianapolis, IN; ⁴Indiana Clinical and Translational Sciences Institute, Indianapolis, IN

Background:

Pediatric patients with acute lymphoblastic leukemia (ALL) receive large doses of neurotoxic chemotherapy as part of their treatment. Though lifesaving, it can induce life-long issues. Cognitive deficits are one of the most common reported concerns in survivorship clinic among pediatric cancer survivors. One unique approach to improving deficits in cognitive functioning is The Mediated Learning Experience (MLE) developed by Reuven Feuerstein. MLE is based on neuronal plasticity. Findings from MLE studies have shown improvements in cognitive task performance, increases in daily functioning, and increased learning in patients with neurological impairment. However, MLE has never been administered to children or adolescent cancer survivors with cognitive deficits.

Methods:

Survivors were recruited from the Survivor Clinic in IU North Hospital. Survivors were 10-16 years of age, English speaking, and reporting executive functioning issues in school. The intervention utilized was the MLE enrichment tool: Organization of Dots. Participants met with MLE certified mediators 30 – 40 minutes biweekly for 8 weeks. At 5 weeks, separate interviews were conducted with parents and participants to assess perceived changes in cognitive functions. These interviews asked participants to rate perceived changes on a Likert-type scale, which allowed for comparison of perceived changes reported by participants and parents.

Results:

Four participants and their parents completed the 5-week interview. Preliminary results show participants and their parents perceive positive changes in the participants' cognitive skills, new learning, motivation, transfer, metacognition, and active learning.

Conclusion/Potential Impact:

Many pediatric cancer survivors experience cognitive deficits following their cancer treatment. There are limited options for these individuals for assistance in improving function, most of which are costly or difficult to access. The current study demonstrated that utilization of the MLE approach by Feuerstein can be a feasible option for filling the resource gap in neurocognitive rehabilitation.