

Abstract  
Paper Sessions

Thursday, November 14, 2:15 pm – 3:15 pm

EMERGING RESEARCH IN PEDIATRIC NEUROPSYCHOLOGY-4

**The Relationship of Transcranial Doppler Ultrasonography with Attention, Motor, and Social-Emotional Functioning in Pediatric Sickle Cell Disease**

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**Objective:** Children with sickle cell disease (SCD) are at greater risk for certain neuropsychological deficits due to their medical condition and associated complications. Previous studies have explored the relationship between Transcranial Doppler (TCD) ultrasonography and various domains of neuropsychological functioning in pediatric SCD populations; however, these studies are dated, present variable and inconsistent findings, and are somewhat limited in scope. The goal of this study was to update and expand upon previous research by examining the predictive relationship of TCD results with measures of attention, motor, and social-emotional functioning. **Methods:** Thirty-six patients ages 3-19 with SCD with no known history of stroke, with TCD completed within the past 12 months, underwent a brief neuropsychological exam. Attention, motor, and social-emotional functioning were assessed as appropriate for age using the Conners Continuous Performance Test (K-CPT2/CPT3), Purdue Pegboard, and PROMIS, respectively. TCD values were gathered via medical record review, using the highest value of most recent TCD. **Results:** TCD significantly predicted certain aspects of attention and motor ability, but not social-emotional functioning. Specifically, TCD significantly predicted Detectability ( $p = .005$ ), Omissions ( $p = .001$ ), Commissions ( $p = .012$ ), Perseverations ( $p = .035$ ), and HRT SD ( $p = .046$ ) on K-CPT2/CPT-3 and the non-dominant ( $p = .009$ ) and bilateral ( $p = .024$ ) trial scores on the Purdue Pegboard. **Conclusion:** This study provides new evidence that TCD may be predictive of motor functioning in pediatric SCD. Results confirm that TCD is predictive of attentional function, though subdomains impacted varied from previous research. While no significant relationship between psychosocial symptoms and TCD were identified, further studies utilizing more comprehensive measurement within this domain is warranted.