(P02) LOW-CONTRAST AND NEAR VISUAL ACUITY CORRELATE WITH COGNITIVE PERFORMANCE

H. Feaster,¹ J.M. Bruce,² D. Schell,¹ V.D. Rowe,¹ J.A. Hunter¹

¹MidAmerica Neuroscience Institute, Lenexa, KS; ²University of Missouri–Kansas City, Kansas City, MO

Background: Visual loss is one of the most common and disabling physical symptoms in multiple sclerosis (MS). Low-contrast letter acuity charts are currently being researched in conjunction with optical coherence tomography for their utility in tracking disease progression and the process of neurodegeneration in MS. However, little if any research has been conducted on the potential utility of low-contrast visual acuity as a means of examining cognition in MS. Objectives: The primary objective is to determine whether there are any relationships of low-contrast visual acuity and near visual acuity with cognitive performance within a comprehensive neuropsychological battery. Methods: Fifty-two patients with relapsing-remitting MS (RRMS) and secondary progressive MS (SPMS) were administered a comprehensive neuropsychological evaluation assessing emotional functioning, memory, executive functioning, processing speed, attention, visuospatial abilities, motor skills, and verbal fluency. Visual examination included an assessment of low-contrast visual acuity (5%, 2.5%, and 1.25% illuminated charts), near visual acuity, and visual acuity. Results: Sloan translucent low-contrast letter charts (SLCLC) and the reduced logarithmic near visual acuity chart (NVAC) exhibited correlations with cognitive and physical performance independent of age. This relationship was strongest among tests of motor functioning and processing speed. For example, SLCLC was significantly correlated with performance on the Nine-Hole Peg Test ($r = 0.49, P < .001$), Multiple Sclerosis Functional Composite Test ($r = 0.48, P < .001$), and Symbol Digit Modalities Test (SDMT) ($r = 0.48, P < .001$). NVAC was also significantly correlated with performance on the Nine-Hole Peg Test ($r = 0.50, P < .001$), SDMT ($r = 0.43, P < .01$), and Paced Auditory Serial Addition Test ($r = 0.42, P < .01$). Conclusions: Contrast sensitivity and near visual acuity play important roles in everyday life. It has been suggested that a measure of visual function should be strongly considered for addition to the Multiple Sclerosis Functional Composite Test. Low-contrast and near visual acuity may be promising tools for detecting physical and cognitive changes in patients with RRMS and SPMS and should be examined more closely in larger, longitudinal studies.

Supported by: MidAmerica Neuroscience Institute

Disclosure: Nothing to disclose

Keywords: psychological issues and MS