Low-Contrast Visual Acuity Correlates with Cognitive Performance in Relapsing-Remitting and Secondary-Progressive Multiple Sclerosis

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Low-Contrast Visual Acuity and Near Visual Acuity is Associated with Cognitive and Physical Performance in Relapsing-Remitting and Secondary- Progressive Multiple Sclerosis

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ABSTRACT

Background: It is estimated that more than 50% of Multiple Sclerosis (MS) patients have cognitive difficulties in include problems with memory, processing speed and executive functions. These cognitive difficulties are associated with decreased quality of life, limited social interactions, affective disturbances, reduced medication adherence and difficulty with household and work-related tasks. Visual loss is one of the most common and disabling symptoms of MS. As many as 50% of patients with MS experience visual disturbance as a presenting symptom, and up to 80% will eventually develop visual impairment. Common causes of vision problems in MS include optic neuritis, macular edema, optic atrophy, chiasmal compression and corticosteroids. The use of optical coherence tomography (OCT) with MS patients presenting symptom, and up to 80% will eventually develop visual impairment.

Methods: The study included 50 patients with relapsing-remitting MS (RRMS) and 15 patients with secondary progressive MS (SPMS) who were included in the study. Nearly 82% of the patients in the study were female. Participants were Caucasian (89%) and African American (11%).

Table 1: Demographics

Table 2: Descriptive Test Statistics

As anticipated, participants’ age was significantly associated with 5% (r = –0.33, p<.01), 2.5% (r = –0.29, p<.01), and 1.25% (r = –0.31, p<.01) low-contrast vision and near vision (r = 0.50, p<.01). Diagnosis duration was significantly associated with 5% (r = –0.25, p<.01) low-contrast vision (r = –0.27, p<.01). Low-contrast vision was not significantly associated with participants’ gender or education attainment. Table 2 gives descriptive information for patients’ performance on low-contrast vision, near vision, neuropsychological and motor tests.

Results: A total of 50 patients with relapsing-remitting MS and 15 patients with secondary progressive MS were included in the study. Nearly 82% of the patients in the study were female. Participants were Caucasian (89%) and African American (11%). Table 1 summarizes additional patient demographics.

Table 3: Association between low-contrast vision and cognitive and physical neuropsychological tests

Conclusions: This was the first study to examine the association between low-contrast visual acuity, near vision and performance on motor, visual and non-visual neuropsychological tests in MS. The results revealed a significant association between low-contrast and near visual disturbances with cognitive difficulties in MS. Poorer low-contrast and near visual acuity was significantly associated with increased cognitive difficulties on visual/non-visual tests of cognition as well as upper and lower extremity motor impairment.

Disclosure: The authors are employed by Bracket which provides the CDR System as a universal clinical tool.

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