



Available online at www.sciencedirect.com

ScienceDirect

journal homepage: www.elsevier.com/locate/msard



Neurologists' accuracy in predicting cognitive impairment in multiple sclerosis



Kristoffer Romero^{a,b,*}, Prathiba Shammi^a, Anthony Feinstein^b

^aNeuropsychology Consultation Service, Sunnybrook Health Sciences Centre, 2075 Bayview Avenue, Toronto, Canada M4N 3M5

^bDepartment of Psychiatry, Sunnybrook Health Sciences Centre, 2075 Bayview Avenue, Toronto, Canada M4N 3M5

Received 14 January 2015; received in revised form 18 March 2015; accepted 14 May 2015

KEYWORDS

Cognitive impairment;
Neuropsychological assessment;
Multiple sclerosis;
Neurological exam

Abstract

Cognitive impairment affects approximately 40–70% of MS patients. As management of MS typically begins with, and is co-ordinated by neurologists, they are often the first to raise concerns about a patient's cognitive functioning. However, it is not known how accurate the neurological examination is in identifying cognitive impairment. To this end, we conducted a retrospective chart review of 97 MS patients referred by neurologists for neuropsychological assessment based on suspected cognitive impairment. Patients were classified as globally-impaired or intact according to failure on 2 or more of 11 cognitive indices comprising the MACFIMS, a recommended neuropsychological battery for MS. Neurologists' accuracy was not significantly different from chance, $\chi^2=1.25$, $p=0.26$, with 44.3% of patients with suspected cognitive impairment showing global impairment on objective testing. Cognitively intact patients when compared to those who were impaired had higher levels of education and were less likely to have mood disturbances. These findings indicate the clinical interview and standard neurological examination are not sufficiently sensitive to detect cognitive impairment in MS, and suggest the need for a brief, accurate cognitive screen to complement routine clinical evaluation.

© 2015 Elsevier B.V. All rights reserved.

1. Introduction

Cognitive impairment affects roughly 40–70% of MS patients (Benedict and Zivadinov, 2011). Consequently, accurate measurement of cognitive functioning is an important aspect of managing overall care. Formal neuropsychological assessment is the standard for determining cognitive impairment and measuring cognitive changes, and provides crucial

*Corresponding author at: Sunnybrook Health Sciences Centre, Department of Psychiatry, Room FG52, 2075 Bayview Avenue, Toronto, Canada M4N 3M5. Tel.: +14164804216.

E-mail address: Kristoffer.romero@gmail.com (K. Romero).

information that influences a patient's functional independence (Benedict and Zivadinov, 2011; Langdon, 2010), work capacity (Benedict et al., 2005), and overall quality of life (Glanz et al., 2010). Assessing neuropsychological performance over time also informs clinicians with respect to monitoring treatment (Benedict, 2005). However, access to such services is often limited to neurologists working in university-affiliated hospitals or within the private sector by cost.

Despite the importance of identifying cognitive changes in MS, little is known about the accuracy of identifying cognitive impairment based on clinical judgment. As neurologists are typically the first line in managing MS patients, determining the accuracy of routine history taking and neurological evaluation in raising concerns about cognitive impairment is of immediate clinical relevance. Thirty years back, a study exploring the accuracy of neurologists in predicting cognitive impairment revealed that approximately half of patients deemed intact turned out to be impaired based on neuropsychological inquiry (Peyser et al., 1980). Given the increase in research on cognition in MS over the subsequent three decades, improved awareness of cognitive deficits in MS may have translated into improved accuracy in identifying cognitive impairment in these patients. To this end, we sought to estimate the current accuracy of neurologists' ability to detect cognitive impairment, by conducting a retrospective chart review of MS patients with suspected cognitive impairment referred for neuropsychological testing.

2. Materials and methods

2.1. Participants

We reviewed the charts of patients with a confirmed diagnosis of MS (McDonald et al., 2001) referred for cognitive testing to a Neuropsychiatry service between January 2010 and January 2014. Referrals were made by neurologists based on suspected cognitive impairment. Exclusion criteria for the purpose of the present inquiry were a history of co-morbid neurological disorders that could affect cognition (i.e. stroke, traumatic brain injury), developmental delay and when English as a second language was thought to have influenced the overall cognitive results. In addition, patients who were missing neuropsychological test scores or other clinical variables were not included in the study, resulting in a total of 97 patients included for analysis.

2.2. Measures

Demographic information, including, age, sex, years of education, and employment status at the time of neuropsychological assessment were extracted from patient files. In addition, MS-related variables (disease course, disease duration, Expanded Disability Status Scale scores, and use of disease-modifying drugs) were also recorded.

The neuropsychological assessment included the Minimal Assessment of Cognitive Functioning in Multiple Sclerosis (MACFIMS) (Benedict et al., 2002), a cognitive battery covering the most common cognitive deficits observed in MS: specifically, tests of Information processing speed

(Symbol Digit Modalities Test [SDMT]; Paced Auditory Serial Addition Task [PASAT]) (Gronwall, 1977; Smith, 1982), verbal memory (California Verbal Learning Test [CVLT-II]) (Delis et al., 2000), visual memory (Brief Visuospatial Memory Test Revised [BVM-T-R]) (Benedict, 1997), verbal fluency (Control Oral Word Association Test [COWAT]) (Benton et al., 1994), visual perception (Judgment of Line Orientation [JLO]) (Benton et al., 1994), and executive functioning (Delis-Kaplan Executive Functioning System - Card Sorting Test [CST]) (Delis et al., 2001). Patients were classified as having global cognitive impairment based on the presence of two or more test scores falling 1.5 standard deviations or below the age- and education-corrected norms where available. Patients were also given the Hospital Anxiety and Depression Scale (Zigmond and Snaith, 1983). All assessments were conducted by a post-doctoral fellow in neuropsychology (K. R.) or an experienced psychometrist, both under the supervision of a licensed neuropsychologist (P.S.).

2.3. Analyses

We used the Chi-squared statistic to determine neurologists' accuracy in predicting cognitive impairment. Specifically, we calculated the frequency of patients with suspected cognitive impairment who were cognitively-intact or -impaired on objective neuropsychological tests, and compared those frequencies to chance performance (50%). This allowed us to determine whether neurologists' ratings as a whole were significantly different from chance. Subsequently, we also compared demographic and clinical variables between cognitively-impaired and intact MS groups using independent samples *t*-tests. These comparisons provided additional information regarding factors that differ between patients with and without cognitive impairment.

2.4. Ethics

All research protocols were approved by the research ethics board at Sunnybrook Health Sciences Center prior to the study.

3. Results

Of the 97 MS patients whose data were analyzed, 44.3% (43/97) had confirmed global cognitive impairment. Neurologists' accuracy in predicting cognitive impairment in the whole MS patient sample was not significantly different from chance, $\chi^2=1.25$, $p=0.26$. We also conducted separate analyses to determine whether predictive accuracy differed across disease course. Patients were grouped into those with relapsing-remitting or progressive (primary or secondary) disease courses. Accuracy did not differ as a function of disease course, with neurologists accurately identifying cognitive impairment in 44.6% of patients with relapsing-remitting MS (37/83; $\chi^2=0.98$, $p=0.32$), and in 42.9% of patients with primary or secondary progressive MS (6/14; $\chi^2=0.29$, $p=0.59$).

Rates of cognitive impairment for each neuropsychological test are listed in Fig. 1. The most common cognitive deficits appeared on processing speed tests, with 33-35% of patients falling in the impaired range. Visual memory was

Download English Version:

<https://daneshyari.com/en/article/5912799>

Download Persian Version:

<https://daneshyari.com/article/5912799>

[Daneshyari.com](https://daneshyari.com)